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OIL WORLD
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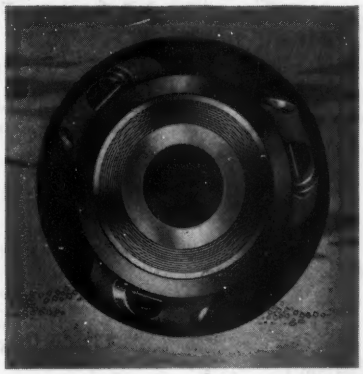
Either way you look at it...



it's a BETTER REAMER

THERE are two sides to this reamer question...but either way you look at it, you're out in front with the Sievers Reamer!

If you're interested in ***cutting*** efficiency, then take a look at the Sievers Reamer from the front and you'll see the most efficient cutting action ever built into an oil field reamer...a cutting action that actually ***slices*** all excess material **AWAY** from the walls instead of ***rolling*** it INTO the walls...a cutting action that gives you round full-gauged walls that ***stay*** round and full-gauged...a cutting action that ***aids*** the action of the bit by the downward thrust it creates, and thus materially increases drilling speeds!

Or, if you're interested in ***stabilizing*** efficiency, then take a look at the Sievers Reamer from the top and you'll see a wide wall contact that centralizes the drill string against 30% to 35% of the circumference of the hole ...a wide wall contact that steadies the bit from a greater number of directions, eliminating "whip" and assuring ***complete*** stabilization of your pipe ...a wide wall contact that further increases reaming efficiency by making it almost impossible to pass the tool through tight spots in the hole without first cutting the walls out to full gauge!

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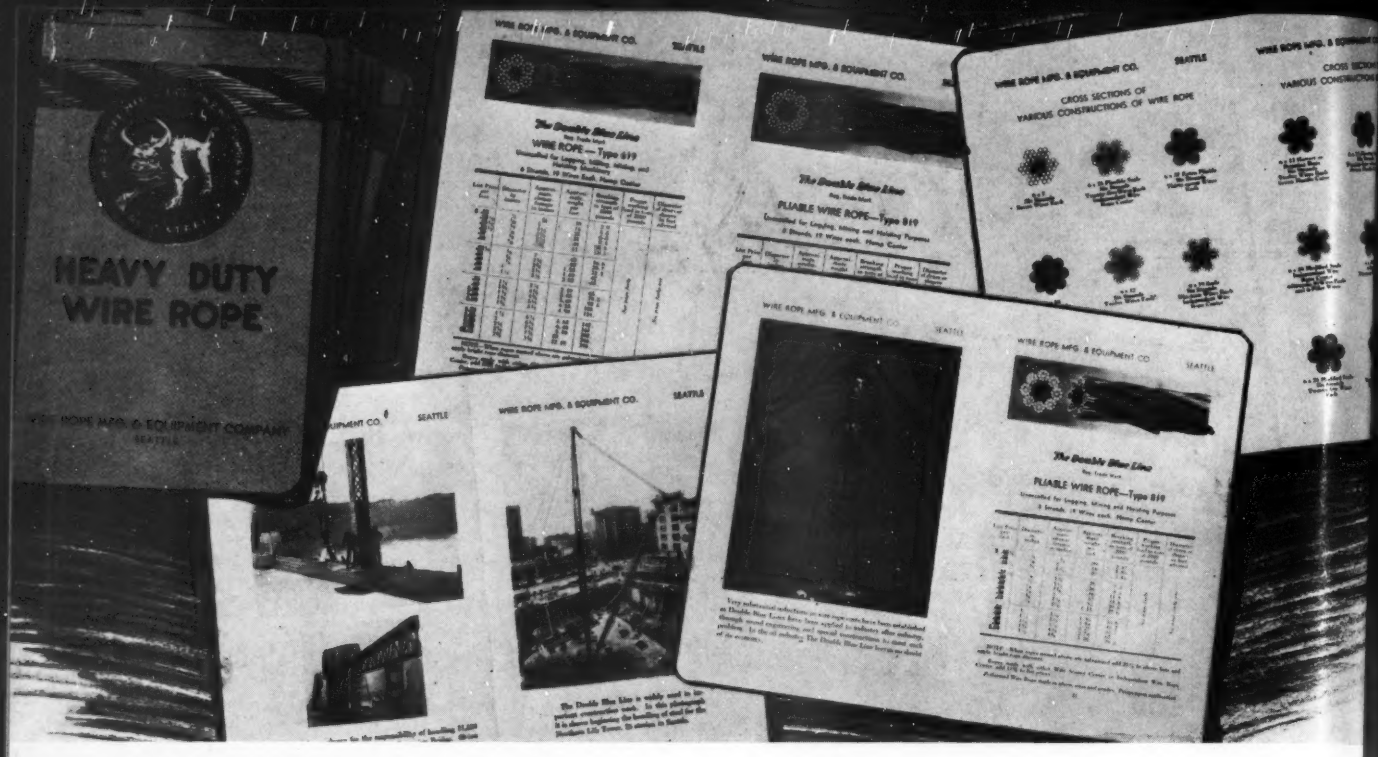

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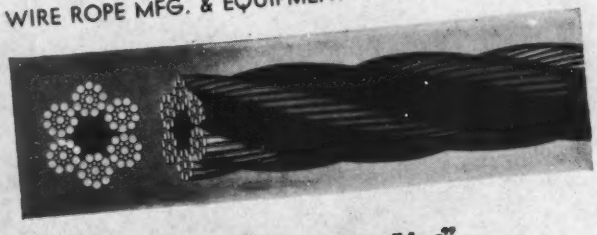

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OIL WORLD
and Petroleum Industry

THE AUTHORITY ON THE CALIFORNIA OIL INDUSTRY

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January 10, 1939

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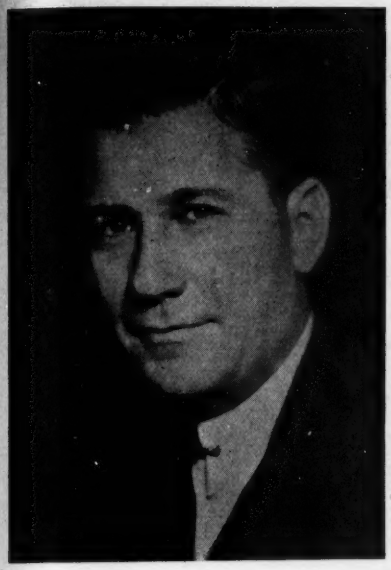
Scenes from Wild Cats Christmas Hi-Jinks

C. P. Watson Heads Oil & Gas Assn.

C. P. Watson, vice-president of the Seaboard Oil Co. of Delaware, was elected president of the California Oil and Gas Association at the December meeting of the Association board of directors. L. P. St. Clair, chairman of the board of the Union Oil Co. of California, and R. E. Collom, vice-president of the Continental Oil Co., were re-elected vice-presidents. H. L. Westbrook, vice-president of the Belridge Oil Co., was re-elected treasurer for his 14th successive term. F. E. Foster continues as managing director, and D. S. Kilgour continues as assistant manager.

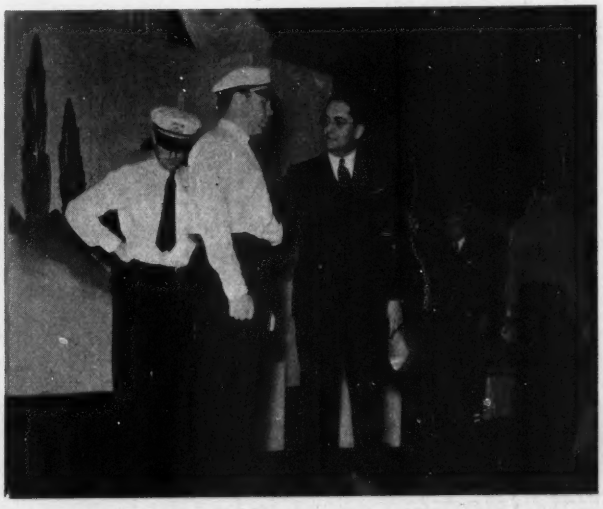
Directors elected for 1939 include: S. Belither, president, Shell Oil Co.; W. H. Berg, president, Standard Oil Co. of California; E. C. Bolton, general superintendent, Ohio Oil Co.; R. A. Broomfield, executive vice-president, Barnsdall Oil Co.; C. R. Gallagher, president, Western States Gasoline Corp.; E. B. Gilmore, president, Gilmore Oil Co.; Dana Hogan, president, Hogan Petroleum Co.; H. E. Howard, president, Howard Supply Co.; Wm. F. Humphrey, president, Tide Water Associated Oil Co.; Charles A. Johnson, president, Holly Oil Co.; C. S. Jones, president, Richfield Oil Corp.; W. M. Keck, president,



C. P. Watson

Dick Guiberson, shaking hands with Col. F. E. Foster, has an ace in the hole in this deal as Mark Woolery looks on. The colonel, however, takes the pot.

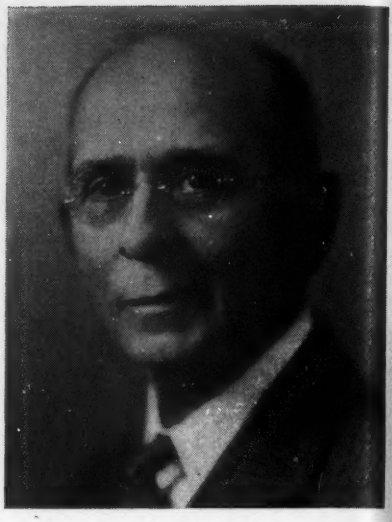
Joe Dunn, Bill Brooks and Ward Blodget have just completed a particularly intricate rehearsal and are resting.



Service station attendants L. L. Aubert and Arthur Stewart are telling Dave Smith why they have no gasoline pumps.

L. P. St. Clair

R. E. Collom



H. L. Westbrook

Superior Oil Co.; R. B. Lloyd, president, Lloyd Corp.; Alexander B. Macbeth, president, Southern California Gas Co.; A. C. Mattei, president, Honolulu Oil Co.; William Reinhardt, vice-president, Union Pacific Railroad; F. C. Ripley, manager, Chanslor-Canfield, Midway Oil Co.; Torrey H. Webb, vice-president, general manager, The Texas Co.; A. L. Weil, president, General Petroleum Corp. of California.

WILDCAT CHRISTMAS JINKS PROGRAM

Master of Ceremonies—Joe Dunn

"The Specialist"

A Play

Presented by the Wildcats

Cast of Characters

Jones ..... Dick Guiberson
Mattson ..... Art Wallace
Monroe ..... Dale Russell
Price ..... Mark Woolery
Gray ..... Bill Geis
Oswald ..... Joe Jensen
Architect ..... Dick Clark
Plumber ..... Bill Brooks
Buyer ..... Colonel Foster
Frank Morgan
Attendants ..... Art Stewart
Red Aubert
Salesmen ..... Frank Champion
Bill Pemberton
Customers ..... Dana Hogan
Chas. Wagner
Dave Smith
Dave Kilgour
Drunks ..... Neil Needham
Ward Blodget
Stage Director ..... Loren Hillman
Properties ..... Dale Russell
Dick Clark
Mechanical Effects ..... Jack Winston
Torrey Webb
Professional Show .... Dave Smith

Executive officers of the Toxic Oil Co., Art Wallace, Dick Guiberson, Dale Russell, and Bill Geis, are poised to launch a coup d'etat in super service stationship.

Maybe you can find Bill Pemberton, Ward Blodget, Frank Champion, Dave Kilgour, Charlie Wagner, Stan Natcher, Floyd Bryant, Dick Clark, Bill Geis, and Frank Morgan.

Youngstown Sheet & Tube, Republic Supply

Purchase Emsco Derrick & Equipment

Through purchase of more than 200,000 of the 373,594 shares outstanding, The Youngstown Sheet and Tube Co., and The Republic Supply Co. of California have acquired controlling interest in the Emsco Derrick & Equipment Co., according to an announcement made in the closing days of the year. The purchase includes all of the holdings of E. M. Smith, president and founder of Emsco. Mr. Frank Purnell, president of Youngstown Sheet & Tube Co., succeeds Mr. Smith as president of Emsco. J. A. Crawford, president of Republic Supply, and W. J. Morris, president of Continental Supply Co., with Mr. Purnell, form the new executive committee of Emsco.

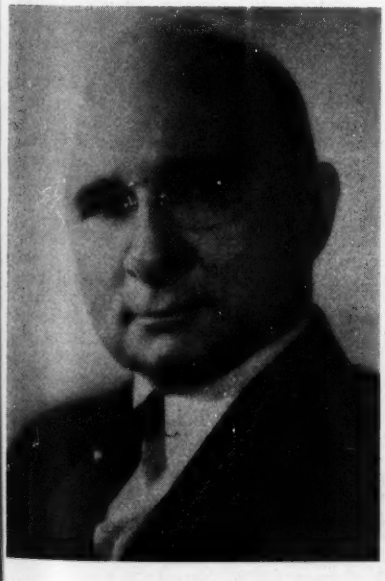
Frank Purnell

Newly elected directors of Emsco are, in addition to the executive committee members, W. B. Gillies, vice president of Youngstown; F. I. Brinegar, vice president of Continental Supply; W. D. Davidson, vice president of Emsco, and T. H. Beament, vice president of Republic Supply.

The transaction further strengthens the position of Youngstown Sheet and Tube in the Pacific Coast oil picture, where it has been represented by its distributor, The Republic Supply Co. of California. Continental Supply Co., a subsidiary of the Youngstown company, operating out of Dallas, Texas, will continue to distribute Emsco products in the Mid-Continent and Rocky Mountain oil fields. Likewise, Continental Emsco Co., with headquarters in New York, will continue to distribute Emsco equipment in foreign oil fields. The Republic Supply Co. will continue as a distributor on the Pacific Coast.

In announcing the purchase of controlling interest in Emsco, Youngstown and Republic Supply stated that "It is the purpose of Youngstown and Republic, by bringing the manufacture and distribution of Emsco products into closer relationship, to serve all interests more effectively." Emsco Derrick & Equipment Co. is one of the leading manufacturers of oil well equipment and supplies, with large plants at Los Angeles, Houston and Dallas Texas, and St. Albans, England.

Officials of the company stress the fact that no mergers are contemplated. The Youngstown Sheet and Tube Co. was organized by James A. Campbell in 1900. Republic Supply was incorporated under its present name in 1917, and is successor to the Tay-Pike Co. formed in Coalinga in 1910. Republic has been distributor for Emsco since 1937. Emsco Derrick & Equipment Co. was formed in 1925 in a consolidation of several Smith companies.



W. J. Morris

J. A. Crawford

California Crude Oil Production

For Two Weeks Ended December 24 1938

	December Daily Quota	Average Daily Production	Excess
San Joaquin Valley			
Belridge—North	14,985	12,919	*2,066
Belridge—South	1,875	1,043	*832
Buena Vista	16,935	16,560	*375
Canal	3,830	3,472	*358
Coalinga-East (Eocene)	2,024	3,660	1,636
Coalinga—East-West	15,851	7,058	*8,793
Coffee Canyon	2,870	3,074	204
Edison	2,485	2,689	204
Elk Hills	7,750	10,455	2,705
Fruitvale	7,050	8,080	1,030
Greeley	2,665	2,495	*170
Kern Front	7,830	7,713	*117
Kern River	5,585	2,539	*3,046
Kettleman No. Dome	58,450	60,662	2,212
Lost Hills	4,230	3,242	*988
McKittrick	3,865	3,339	*526
Midway	42,335	45,477	3,142
Mount Poso	13,605	13,671	66
Mountain View	8,605	9,099	494
Rio Bravo	6,710	8,556	1,846
Round Mountain	9,265	9,880	615
Ten Section	8,705	8,619	*86
Wasco	651	847	196
Other Fields	2,539	2,309	*230
TOTAL	250,695	247,458	*3,237
Coastal Counties			
Elwood	4,790	5,050	260
Rincon	2,990	3,910	920
Santa Maria	5,965	2,720	*3,245
Gato Ridge	2,325	2,943	618
Santa Maria Valley	19,365	10,648	*8,717
Santa Paula-Newhall	4,950	5,399	449
Ventura Avenue	31,145	33,858	2,713
Other Fields	5,765	6,134	369
TOTAL	77,295	70,662	*6,633
Los Angeles Basin			
Alamitos-Seal Beach	7,405	8,510	1,105
Brea-Olinda	8,305	5,638	*2,667
Coyote—East	2,800	2,793	*7
Coyote—West	7,910	7,759	*151
Domingues	19,940	24,485	4,545
El Segundo	4,170	5,520	1,350
Huntington Beach—New and Old	25,700	31,758	6,058
Inglewood	13,110	13,668	558
Long Beach	42,845	63,625	20,780
Montebello	6,159	6,458	299
Montebello-West End	4,451	9,826	5,375
Playa del Rey	5,070	5,498	428
Richfield	7,650	7,952	302
Rosecrans-Athens	8,915	14,307	5,392
Santa Fe Springs	28,180	30,368	2,188
Torrance	15,485	18,972	3,487
Wilmington	69,905	95,862	25,957
Other Fields	2,980	3,450	470
TOTAL	280,980	356,449	75,469
STATE TOTAL	608,970	674,569	65,599

*—Shortage.

Asphalt Production and Many Applications

Discussed at C. N. G. A. January Meet

Many of you gentlemen are engaged daily in working with the light and vaporous fractions from petroleum, but tonight it is my task to acquaint you with the heavy and black side of the petroleum industry.

Everyone knows, in a general way, what **asphalt** is—that it is black and sticky and, therefore, to be carefully avoided. However, most of us who work with it do not think it is so bad. I remember that I was quite shocked when one young man resigned from our asphalt laboratory explaining that he couldn't stand sticky asphalt any longer and was going to take a job in a fertilizer plant. On the other side of the picture I know a man who says he would rather work in a nice, clean asphalt plant than be a surgeon.

There are some fairly good technical definitions of asphalt, but they are rather dull and not very informative for our purnoses, so let us not concern ourselves over a formal definition, but review briefly some of asphalt's chief characteristics. It is an extremely versatile material, and has many unique and desirable properties. It is not only sticky or cementitious, but also plastic, ductile, durable and water-proof. It is unaffected by most acids, alkalies and salts. It can be liquefied not only by heating, but also by dissolving it in petroleum solvents or by emulsifying it with water. It is available in many forms and at relatively low cost.

Some research work has been done on the chemical structure of asphaits and in the last few years several excellent magazine articles on the subject have appeared. Nevertheless we are forced to admit that so far relatively little is known concerning asphalt's chemical composition, the reasons being that:

1. Asphalt contains a wide variety of hydrocarbons.

2. The molecules present in asphalt have very complicated structures.

3. The molecules are of high molecular weight and consequently have high boiling points. Because cracking takes place before the heaviest of these substances can be brought to their boiling points, simple distillation methods for their separation fail.

4. The compounds are, as we said before, relatively inactive toward chemical reagents.

In routine work we get a rough classification of the components of asphalt by making solubility determinations using the three solvents—carbon disulphide, carbon tetrachloride and petroleum naphtha. Materials insoluble in CS_2 are given the name "carboids" (this determination of insoluble material includes mineral matter, which if present in appreciable amounts, may be corrected for by means of an ash determination); materials soluble in CS_2 but insoluble in carbon tetrachloride are called "carbenes"; materials insoluble in petroleum naphtha are "asphaltines"; and materials soluble in petroleum naphtha have the name "malthenes" (or "petrolenes").

Sometimes if we feel really "work-brittle" we separate asphalts by a little more elaborate technique into asphaltous acids, asphaltous acid anhydrides, asphaltines, resins and oily constituents.

Native asphalts were known and used as long ago as 3000 years before Christ, but lapsed into disuse for many centuries, partly because civilization moved away from those regions where asphalt was to be found free in nature. Today nine-tenths of our supply of asphalt is produced from petroleum as one of the products of an industry which is only about 40 years old. The United States leads by a wide margin in the production of both native and petroleum asphalts. Certain crudes are, of course, more suitable for making asphalts than others. Their asphalt contents vary from a mere trace to about 60%. The quality of asphalt produced depends upon the nature of asphaltic materials present in the crude, the process used and the care taken in manufacturing. On the West Coast we have excellent crudes for the production of asphalt and very little native asphalt is used here. In refining very heavy crudes asphalt is sometimes considered the main product and the distillates, gasoline, kerosene, etc., are looked upon as by-products. From petroleum we now obtain liquefied gases, gasoline and Diesel fuel with which to power automotive equipment, the lubricants which are so essential to their operation and the asphalts for building roads on which this equipment is operated. In addition to these items the automotive industry also obtains from the petroleum industry important quantities of carbon black and mineral rubber for tires, and solvents for the newer types of lacquers.

I have prepared some very simple charts, the first of which (Chart No. 1) shows briefly the principal types of asphaltic products which are derived from petroleum. The chart is by no means complete. It omits, for example, important products such as asphaltic paints and the clay type emulsions which are of a paste-like consistency. You will notice that we divide the asphaltic products into two classes — asphalts (which are solid or semi-solid materials) and asphaltic liquids. Then we further subdivide the first group into steam refined asphalt and oxidized asphalt. Shown at the side are two of the most important characteristics of these products, namely penetration and softening point. For the steam refined product the penetration range is 20 to 200 and the softening point range is 130° to 100°F.

CHART NO. 1
PRINCIPAL TYPES OF ASPHALTIC PRODUCTS FROM PETROLEUM

1. ASPHALTS
   - (a) Steam refined (Pen. 20-200) (S. P. 130-100°F.)
   - (b) Oxidized (Pen. 10-100) (S. P. 200-120°F.)
2. ASPHALTIC LIQUIDS
   - (a) Road Oils (S.C.)
   - (b) Cut-backs
     1. Kerosene cut-backs (M.C.)
     2. Gasoline cut-backs (R.C.)
   - (c) Emulsions (soap type-liquids)

Penetration is a measure of the consistency and is merely the depth measured in tenths of a millimeter to which a standard needle will sink into the sample under standard conditions of load, time and temperature. Hence the lower the penetration value, the harder the asphalt. The higher softening point, therefore, goes with the lower penetration. Most steam refined asphalt is made by the continuous processes, but it is easier to describe the older batch system first and this is, briefly, as follows: A quantity of crude oil is placed in a shell still and heated, thus driving off the more volatile constituents. As distillation proceeds and it becomes necessary to increase the heat to drive off heavier oils of the lubricating oil classification, steam is introduced into the bottom of the still to facilitate distillation and to prevent scorching or cracking of the oil remaining in the still. Sometimes vacuum is also employed to assist removal of ditillates in this process. When the residual material in the still has reached the desired consistency, distillation is complete and the residue is finished asphalt. In a continuous process, a similar result is achieved, but the operations are carried on in a different sort of equipment and with very much increased efficiency. The crude oil is charged through heat exchangers, takes up heat from the outgoing residual stock and then goes through a pipe still (where it is heated to the proper temperature) to a fractionating tower where steam is introduced and the crude oil is separated into the desired components.

Oxidized asphalt is manufactured in order to obtain material having a higher softening point for a given consistency, as measured by the penetration test, than that which the corresponding steam refined product would have. The ranges shown are by no means comprehensive, but just typical ranges for certain kinds of charging stocks and certain air-blowing procedures. For 10 penetration we show a corresponding softening point of 200 and for 100 penetration a softening point of 120. Practically all oxidized asphalt is produced by batch operation, similar to that described for the steam refined, except that the charging stock is usually a material which has been previously refined to remove the lighter constituents of the crude, and air is substituted for all or part of the steam. Some steam is usually used above the liquid in the still to prevent explosion hazard. The chemical reactions which take place during air-blowing are very complicated but in general dehydrogenation takes place rather than oxidation. CO_2 and H_2O are formed, the oxygen in the air uniting with carbon and hydrogen in the oil molecules. The reactions are exothermic and in some types of operation it is necessary to remove heat from the system during the air-blowing.

Road oils are made in a similar manner to the steam refined asphalts except that distillation is not carried out as far and the road oils are consequently softer materials. There are a number of grades of road oil and they are usually designated in the trade as "SC" materials —the "SC" standing for "slow curing". Under cut-backs, we show two kinds—kerosene cut-backs and gasoline (or

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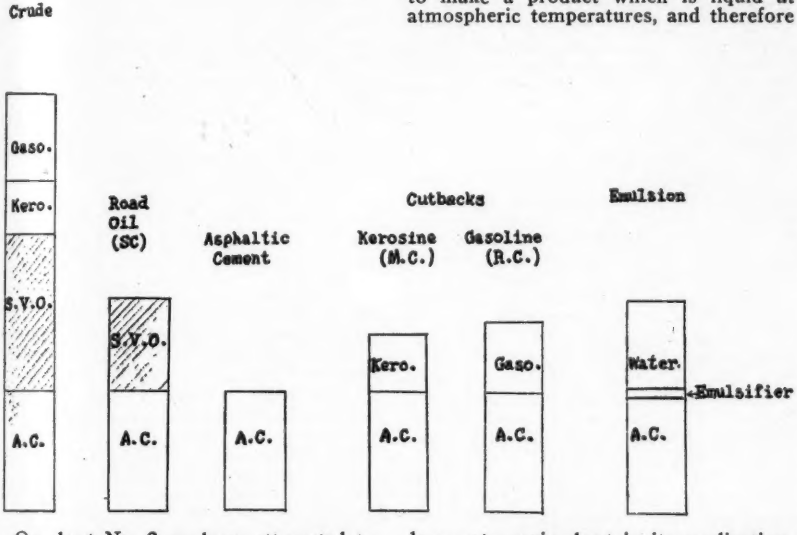
Presented at January meeting of the California Natural Gasoline Association.

naphtha) cut-backs, the first being designated as "MC" or "medium curing" materials and the second as "RC" or "rapid curing". Cut-backs are made by blending asphalts with varying proportions of the solvents, and a number of different grades of each kind are called for by various specifications. Cut-backs are used where it is desired to apply the material at lower temperatures than those necessary for asphalt and then have the cut-back product harden in place by evaporation of the solvent.

We have now come to the bottom of the chart where we have listed the soap-type liquid emulsions. These are produced in considerable quantities and are often shipped in tank car lots of 10,000 gallons or more. We shall have more to say about these products later on.

CHART #2



On chart No. 2 we have attempted to show graphically a sample of crude subdivided into simple components and the classes of asphaltic products made from this crude, namely—road oils, asphaltic cement (designated by the mark "A.C") two kinds of cut-backs and the liquid emulsions. Crude oils contain, of course, a large number of different compounds and the classifications which I have shown above are purely arbitrary. The bottom portion is called "A.C." or asphaltic cement, the next portion above is marked "S.V.O." standing for "slowly volatile oils", the next is kerosene and the top portion is gasoline. If we drive off the three upper portions, we obtain the asphaltic cement corresponding to the rectangle shown in the third column. If not all the slowly volatile oils are driven off, we then produce one of the road oils as indicated by the larger two-component rectangle in the second column. Typical cut-backs are then shown in the fourth and fifth columns as made from asphaltic cement and a certain amount of kerosene or naphtha. As we said before, different quantities of solvents are used for different grades, and we could use a road oil as base instead of the asphaltic cement. Unlimited permutations are thus possible and so in setting up standard specifications the state highway departments and the producers work together, so that the number of specifications called for will cover all the essentially different and necessary grades and yet not be unnecessarily complex and burdensome.

In the last column on this chart we find again the emulsions. Emulsions have been made which contain 98% or more of oil dispersed in water, the oil particles in such an emulsion being greatly deformed. The maximum space which can be occupied by uniform spheres in a given volume may be mathematically calculated and found to be 74.02%. This figure represents then the limit of the quantity of one material which can be dispersed in uniform sized particles in another material without deformation of the dispersed globules. Nearly all the liquid asphaltic emulsions used commercially at present contain about 55% of asphalt (or road oil), 44% of water and 1% or less of emulsifying agents, including alkalies, soaps, etc. The chief reason for producing asphaltic emulsions is, of course, to make a product which is liquid at atmospheric temperatures, and therefore does not require heat in its application. I shall pour some of this emulsion (pouring beaker about half full) containing 55% asphalt so you will see how fluid it is. As a very general sort of working rule we may say that the viscosity of an emulsion will be like that of its external phase. These asphaltic emulsions are oil-in-water type, that is,—droplets of asphalt suspended in an aqueous external phase, and they have, therefore, relatively low viscosity. Crude oil emulsions as found in the oil fields are chiefly of the opposite type, that is, water-in-oil, and these emulsions are viscous. Simple rules like the one we just gave in order to contrast the oil-in-water and the water-in-oil types are inadequate for guidance in manufacturing where it is desired to obtain products having viscosities within fairly narrow specification limits. Mathematical expressions for calculating the viscosity of emulsions have been proposed, but so far are very limited in scope and have not been sufficiently comprehensive for commercial asphaltic emulsions. There is much to be learned about the viscosity characteristics of the emulsions, especially those of the oil-in-water types.

It is a little hard to believe that a thin emulsion may contain 55% asphalt, so I shall "break out" the asphalt from this quick-break emulsion by adding a definite quantity of calcium chloride solution to the sample of emulsion. (Demonstration). Emulsions are commonly thought of as being either quick-break or slow-break type, the better nomenclature in the industry being penetration and mixing type respectively. You will note that we obtain a large amount of the asphalt from this quick-break or penetration sample. If now we do the same thing with the slow-break type, you will note that the emulsion remains unbroken and you will have to take our word for it that it does contain just as much asphalt as the other sample. (Demonstration). This mixing type emulsion can even be mixed with Portland cement without forming lumps. Both types must be stable in storage, that is, the asphalt must not settle out. One of the ordinary specification requirements is a settlement test in which a top sample must have an asphalt content not varying more than 3% from the asphalt content of a bottom sample after ten days standing. We have often tested emulsions that have been in storage for several months and found them to show practically no difference in asphalt content between the top and bottom sample. Although stable in storage, the emulsions must, of course, break when applied the quick-break type breaking through the effects of three factors — evaporation of water, and the absorption of water and the electrical effects produced by the electrolytes present in the mineral aggregates. The slow-break type breaks chiefly because of the first two factors and not so much because of the electrolytic effects. Both will break fairly rapidly if brushed on paper. (Demonstration).

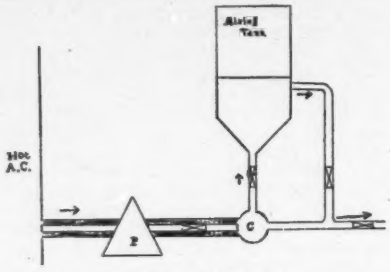
Chart No. 3 shows diagrammatically a simple plant apparatus for making asphaltic emulsions. It indicates a storage tank of hot asphaltic cement and a steam jacketed line connecting it to a centrifugal pump (C) placed below a mixing tank. In the sketch the mixing tank is about half full of an aqueous solution of the emulsifying agents ready to start the emulsification process. This solution is circulated by means of the lines shown and is maintained at a temperature considerably above atmospheric. The asphalt is introduced gradually into the suction of the centrifugal pump, the hot oil pump (P) being used to provide uniform pressure on the asphalt in the steam-jacketed line. When the desired amount of asphalt has been incorporated, the batch is cooled and sent to storage or loading facilities.

Many types of equipment are used in producing emulsions. There is nothing new about the one shown on the chart, similar sketches having appeared in patents as long as 20 years ago.

You have noticed that the color of these emulsions is brown instead of black. This effect is attributable to the small particle size of the dispersed material. It is interesting to reflect that if we could make the particle size as small as we desired, we could prepare white or colorless emulsions. This does not mean we could make white asphalt, however, because upon breaking of the emulsion and agglomeration of the particles, we should have black asphalt again just as we do when the brown emulsions break.

Machines known as colloid mills are sometimes (though by no means always) used in manufacturing emulsions and consequently it is sometimes thought that emulsion droplets are of colloidal size, but they are not quite that small. Let us consider subdividing one cubic

centimeter of asphalt by making it into emulsion droplets. This next chart (Chart No. 4) shows what happens with respect to the number of particles and the surface areas when one cubic centi-



meter is decimally subdivided in successive steps. The first column gives a rough classification as to visibility, the second column shows the length of the side of the cubes, the third is the number of cubes and the fourth the total sur-

Visibility	Side of Cube	No. of Cubes	Total Surface
Coarse Dispersions			
Eye	1 cm	1	6 sq. cm
	1.0 mm	10^3	60 sq. cm
	0.1 mm	10^6	600 sq. cm
Microscope	0.01	10^9	6000 sq. cm.
	0.001 (1 mu)	10^{12}	6 sq. m.
Colloids			
Ultramicroscope	0.1 mu	10^{15}	60 sq. m.
	0.01 mu	10^{18}	600 sq. m.
Molecular Dispersions			
Invisible to Ultramicroscope	Below approximately 0.005 mu		

face. You will note under the visibility column the four general classifications: Eye, Microscope, Ultramicroscope and Invisible to Ultramicroscope. "Coarse dispersions" include the first two of these visibility groups, that is, "visible to the naked eye" and "visible under the microscope." The one cube with which we begin our decimal subdividing operation has a measurement of one centimeter on its edge, and a total surface of six square centimeters. In the first subdividing step, we obtain ten to the third power, or one thousand cubes of one millimeter length of side, and sixty square centimeters surface area, and these cubes are then each decimally subdivided in the next step and so on as indicated in the tabulation. The emulsions roughly fall within the second visibility classification, the same space as that allotted for the microscope. In other words, they are coarse dispersions of microscopic size and not colloids. The colloids are in the next smaller particle size division. Commercial emulsions are sometimes made whose particle sizes are well within the limits of one micron to ten microns. If we assume an average size of five microns for such emulsion, an easy calculation should show that one cubic centimeter of the finished product would contain approximately four billion droplets of asphalt. We believe that high grade emulsions should have as one characteristic small and uniform particle sizes. There are many ways of producing asphaltic emulsions. Two hundred patents were taken out on these products during the last ten years. Although it is not very difficult to make an emulsion of some sort, it should be remembered that the quality of the finished emulsion will depend upon (1) the properties of the asphaltic stocks, (2) the various chemicals used and (3) the manufacturing processes. It is possible for an ingredient to be used in a quantity as little as one thousandth of 1% (0.001%) in making an emulsion and yet have important effects on the properties of the finished product.

Emulsions have certain advantages when compared with road oils or asphalts, the principal one being that no heat is required in applying them. It is also possible under certain conditions to coat densely graded aggregates with thinner films using emulsions than would be the case using hot oils. They can also be used to some advantage under weather conditions where hot oils would not function as well. Emulsion is shipped in uninsulated cars, whereas road oils and asphalts require insulated cars. Delays in construction operations might make necessary reheating of road oils in order to unload them, whereas this would not be the case with emulsions. On the other hand, an emulsion is more expensive than a corresponding road oil because we have taken a finished product and performed further manufacturing operations on it. Also, when we ship emulsions we are shipping an appreciable quantity of water and the freight rate is therefore higher for a given quantity of asphalt used on the job. Somewhat more careful supervision may also be required in the case of emulsion.

Emulsions are used for road building, soil stabilization and miscellaneous types of water-proofing. One interesting use here in the Southwest is in the manufacture of adobe brick. We may demonstrate what will happen to an unstabilized brick as compared to a stabilized one when a sample of each is immersed in water. (Demonstration—unstabilized brick quickly disintergrates, the other is unaffected even after long standing). The lighter colored brick is unstabilized, the darker one has 3% emulsion incorporated with it during manufacturing. The finished dry brick contains, therefore, slightly more than 1½% of asphalt.

We have just mentioned some of the uses of emulsion. Let us now look briefly at Chart No. 5 which is a general list showing the most common types of work for which the asphaltic products are utilized. By far the greatest proportion of these materials goes into the production of roads, and for this purpose we use asphalts, road oils, cutbacks and emulsions. Roads are usually built up in layers and many different procedures are followed. We cannot

CHART NO. 5

USES

PAVING—Roads, Bridge, Airports, Tennis Courts, Playgrounds.
ROOFING
CORROSION PROTECTION, tanks, etc.,
WATERPROOFING—Floors, Foundations, etc.
RESERVOIRS
IRRIGATION AND DRAINAGE CANALS
FLOOD CONTROL—Revetments
JETTIES
REFRIGERATION
BRIQUETTING FUELS

take time to discuss any of these processes, but the terms "surface treatments", "penetration macadam", "road mix", "plant mix" and "asphaltic concrete", are commonly encountered, and are highly suggestive of the type of construction in which they are applied. Because of the versatility of the asphaltic products, we can construct from them, pavements which are very inex-

CHART NO. 6

ASPHALTIC MATERIALS

From Petroleum—U. S. 1936

PRODUCED—in tons	
Asphalts	4,000,000
All other Asphalt Products	1,500,000
Total (approximately $10.00 a ton)	5,500,000
USED	
Paving	3,800,000
Roofing	1,100,000
All others	600,000
Total	5,500,000

pensive yet suitable for light traffic or we may build more expensive pavements to carry the heaviest type of traffic. That is, a very wide range is possible and all sorts of intermediate constructions are common. Costs vary all the way from a few hundred dollars to $20,000 per mile for a road twenty feet in width. At present there are about 80% of city pavements and 40% of rural pavements constructed of asphalt. A pavement twenty feet wide and four inches thick may contain from 80 to 100 tons of asphalt per mile, but this amount represents only about 4 to 6% of the total material in the road, the remainder being aggregates.

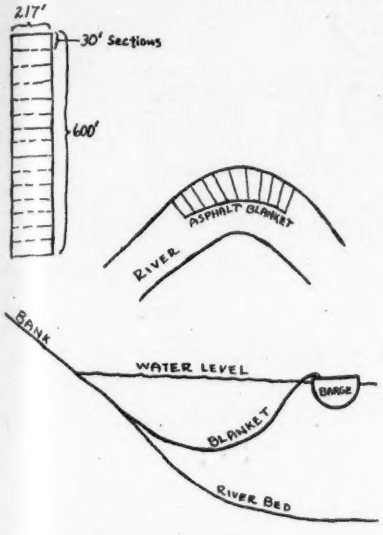
The paving of airports is a field for which asphaltic products are particularly suitable. Airports have large areas which must be kept free from weeds, dust, mud and bumps. Asphalts were first used because of their economy, but it has been found that the resiliency of an asphaltic pavement is a very distinct advantage, especially for the landing runways of the airports.

The roofing industry absorbs most of the oxidized asphalt produced.

Some very interesting work has been done with regard to jetties and harbor protection, but I fear we shall not have time to describe these in detail. We might just mention one especially interesting thing which is done in the jetty work. Hot asphalt is poured into the openings between the rocks on the top of the jetty and flows down into the interstices of the submerged rocks. The asphalt "wets" and coats the rock, displacing the water, and filling the interstices so as to form a solid jetty. By this simple operation the jetty is greatly improved with regard to resisting wave action and the jettied canals are protected against the infilteration of sand.

Under the heading "flood control" we come to what is perhaps the most interesting work ever done with asphalt,—the Mississippi River revetments. Huge blankets of asphalt have been laid to protect the river banks. I have made a rough sketch which I hope will help to visualize how this work is done. In the bend of the river the water tends to cut away the bank very rapidly. The oblongs sketched on the outer curve of the river represent the protecting mattresses. They are 217 feet wide and extend out into the river as far as is deemed necessary—in some cases as much as 600 feet and to depths as great as 160 feet. They are only 2 inches in thickness and are composed of a dense graded asphaltic concrete with flexible steel reinforcements. Each one is built up in sections 30 feet wide and 217 feet long. These sections are built on a barge and because of their plasticity and the fact that each new hot section

joins readily with the previously fabricated section there is very little evidence of joints. The 30-ft. by 217-ft. sections are made and placed at a rate considerably faster than one per hour. Beginning at the water line the barge lays



the mattresses over a large wheel and gradually moves out into the water laying the sections as indicated in the sketch. Above the water line the bank is sloped and paved with asphalt and a good joint is easily made with the top edge of the mattress. It is difficult to conceive of any other type of material which could be adapted to this kind of work.

Properly used, asphalt is a very durable sort of material. Its permanent character has frequently been unappreciated. In certain types of construction where abrasion is encountered asphalt has been used for wearing surfaces in preference to rigid materials. For example, one of our local flood channels was built about five years ago out of Portland cement. The floor of this channel was 8-in. thick with reinforcing steel 2-in. from the bottom. At the end of four years the cement was worn away 6-in. exposing the steel. Then a 2-in. coating of asphaltic concrete was laid and after one year's service showed only about ¼-in. erosion. In order to understand this durability, we have only to consider the remarkable manner in which rubber resists abrasion. It does this, of course, because of its flexibility and resilience. Rubber is used in rock chutes, mining riffles, sand blasting, linings for cement grout tubing and other such purposes, where it withstands terrific abrading forces and lasts many times as long as would rigid materials such as steel, wood or cement. Of course, asphalt is not as resilient as rubber, but is intermediate between it and rigid substances which abrade rapidly.

I was recently asked whether asphalt could be used to advantage in the construction of cooling tower basins. So far as I know it has not been so used, and we should have to say, therefore, that there would be an element of experimentation involved. Large earthen reservoirs have been built with asphaltic linings and some of them have long and highly satisfactory service records. These reservoirs and a number of other types of water control by means of asphaltic mats, indicate that asphaltic linings could be adapted for use in cooling tower basins. In making this adaptation, it should be borne in mind that asphaltic mats are flexible within limits, conform to the base on which they are laid and cannot take the place of structural elements. There are other special phases of this problem, but we can not discuss these details at this time. In general, the established way of doing something is best until sufficient experimental evidence has been gathered to establish a new procedure as reliable and advantageous.

Chart No. 6 gives brief production and consumption data for the year 1936 and speaks pretty well for itself.

In summary, asphalt is available in many forms and is finding new applications in modern times. That so ancient a material as asphalt should have an extensive modern development seems strange until we consider how rapidly our material culture has grown in the last fifty years. All materials are being studied and new uses discovered for them. To engineers, asphaltic products offer economies in various fields of construction, and in many instances it would be difficult to find materials which could be substituted for asphalt, even at much higher costs. To chemists, asphalt offers the challenge of finding out more about its constituents, and ways of altering them to produce new and useful products.

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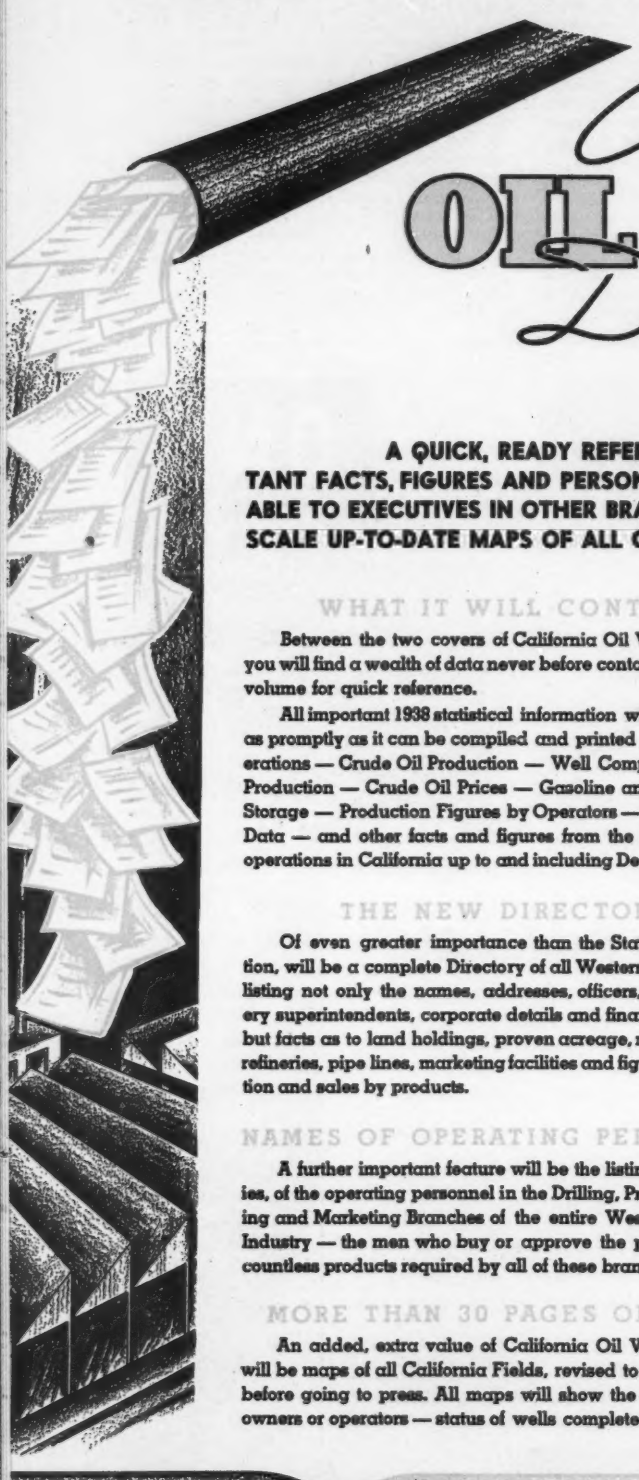

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1938-1939

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California OIL WORLD Directory

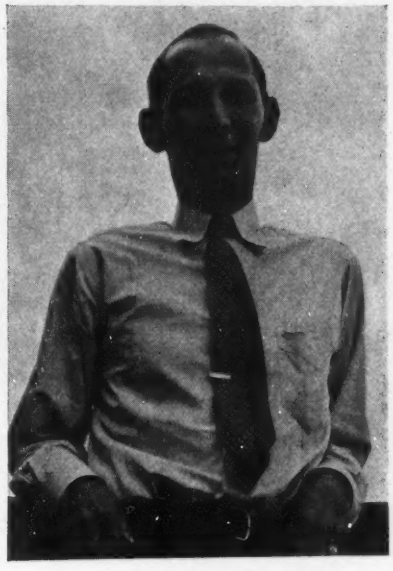
Oil Scouts Play Important Part in Activities

of Oil Producing Companies

"Oil Scouts," many of the old timers will recall some of the thrilling escapades recounted in the book of that title (circa 1900). Who would forget the wild horse race between Pat Boyle and Chuck Tinney to be the first to "give the dope" to their respective chiefs who were pacing the floor of the Oil City Oil Exchange? The adventures of the modern news cameraman grinding away amidst gory conflict, earthquake, flood and fire, give some idea of the strenuous life which was meat and drink to those hardy daredevils who scouted the first "mystery" oil wells.

Harvey Lee, Union

Z. H. Bissell, S. Cal. Gas



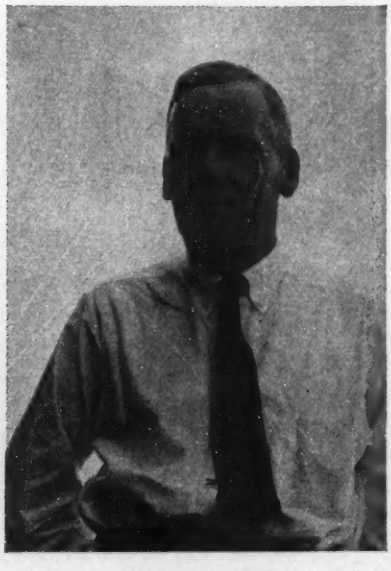
Carl Arleth, Standard

In these days of seismometric, gravimetric and magnetrometric delving into the secrets held thousands of feet down in the earth, and of such wizardries as electrical logging, oriented subsurface surveys, and electrical dip determinations, has the oil scout advanced his technique to take care of the succession of tours, the close-mouthed drilling crews, the hidden controls in the cellar, the locked core house, and numerous other obstacles to the curious mind? Why, it is even possible to prevent the counting of drill pipe stands.

Just what does the oil scout of today do? The California Oil World and The California Oil World News Service have an oil scouting organization which keeps their readers up-to-the-minute on the

"Tut" Tuthill, Texaco

Cliff Johnson, Richfield



Bill Harrod, Shell

proven and wildcat areas of the state. The scouts in this organization are constantly meeting oil company scouts, but the oil company scouts are taciturn and

Vic King, General Petroleum

until recently their mission in life was purely a matter of conjecture to the uninitiated.

Preliminary investigation revealed that scouts form an integral and essential cog in the administrative wheels of every large oil company, and that the functions of scouts are carried out in some manner or other in even the smallest organizations. But the duties of the oil company scout are not alone confined to super-technical snooping. His work is also somewhat along the lines of the insurance actuary. The oil company scout appears to be an individual with an obsession for gathering, compiling, and cataloging vital statistics on oil wells, both dead and live. Several of the scouts visited in their rare office moments were surrounded by a formidable array of maps, bound files, card catalogs, and a battery of telephones. After explaining the nature of the visit, viz., to discover what oil scouts do, the interviewer waited hopefully for some tales of exploits which would recall those of Pat Boyle and his old rivals.

To the interviewer's surprise and no little disappointment, the host carried on most of the conversation, but not about the widely circulated story of how he cracked a certain holdout by bribing a truckdriver to let him pose as a swamper to get up to the well, then when the coast was clear, how he ducked under the derrick floor to remain there until the desired dope had been acquired (The payoff on that story was that while he was in hiding the crew pulled the drill pipe with the bit plugged). However, although this oil scout would not react to numerous hints for a tale of triumph over seemingly insurmountable odds, he did beam with pride when modestly admitting that the file cabinet in the corner contained the most complete set of electric logs ever assembled.

In answer to a question about a certain deep well, the scout handed over a heavy tome and pointed out significantly that the real value of the scout's opus was in the complete book and not in any one page representing any single well, however important that well appeared to be.

Determined to conduct the next interview along more determined and different lines, the interviewer for the California Oil World sought out another oil company scout. Knowing what lines the interview would take if the least weakness were shown, the interviewer promptly asked Mr. Scout to relate in the first person his experience of being caught stealing a sample of oil from a tank truck which was hauling production from a completed wildcat. The request was greeted with a selfconscious chuckle which slowly changed to a grin of expecting pride as the scout produced a card file and informed the interviewer that the dope on that well was but one item in a complete set which embraced every wildcat well drilled in California from the time the first test was spudded.

Faring no better on two more calls, the interviewer called it a day, and, wending homeward, reflected that having lost a thrilling story he had perhaps obtained one of greater value. At least, he had found that the oil company scout is a real human being, alert and sincere, and that day and night he is striving to obtain and put into usable form information which is at present invaluable to his company and which in the future will solve many knotty problems of the industry.

And here are some oil scouts in a group without any indications of bitter rivalry. Shades of Oil Creek!

You can tell that the oil situation has taken a turn for the better.

The petroleum industry has invested approximately $2,000,000,000 in equipment to transfer products from well to consumer.

Supreme Court of Kings County, New York, has upheld as valid the provisions of the New York price maintenance law in its application to the sale of gasoline.

Move to Curtail Crude Oil Production

Gaining Ground in California Fields

From 660,000 barrels per day to a low of 603,000 barrels per day measures the degree of success in the present curtailment drive started with the Bakersfield meeting of operators on December 13.

This meeting, called in Bakersfield by the San Joaquin Valley Oil Producers Association, the Independent Oil Producers Agency, and the Oil Producers Agency of California, was followed a week later by a meeting in Los Angeles, and out of the Los Angeles meeting the machinery for a new attempt to reduce California production to market levels was created.

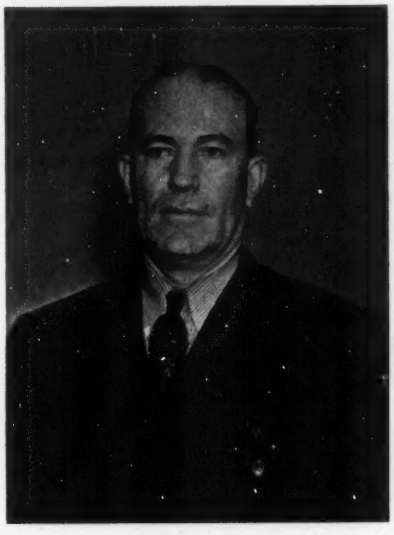
The machinery consisted of three committees: one, a "Grand Jury", or fact-finding body; an emergency executive committee; and a landowners committee. All three committees are functioning, the Emergency Executive Committee being most in the limelight because it has the problem of immediate curtailment, while the other committees are working toward long-time changes, if they are found to be necessary after thorough investigation, in the curtailment structure.

The Executive Committee consists of E. E. Pyles, chairman; J. B. Wells; Ross McCollum; H. P. Grimm; C. C. Spicer. Mr. Pyles has taken a leave of absence from his company, the Hancock Oil Co., and is spending his entire time on the problem, with all other committee members on call at any time for any assistance they can give.

Mr. Pyles, who made what turned out to be the key-note talk at the Los Angeles meeting said then that if the whole California industry was not to collapse from the weight of overproduction and stored oil, certain definite action had to be taken.

Speaking as a member of the curtailment committee of the Wilmington-Long Beach area, Mr. Pyles said at the meeting that "the Long Beach Harbor Commission, one of the largest landowners in the field, is willing to take the lead in curtailment, and will permit a cut to 300 barrels per day for its wells on certain conditions. These conditions are that no other well in the state produce more than 300 barrels per day; that transfers of allowables stop; that in hot spot fields a third-party gauger be employed."

Following this program, the Emergency Executive Committee is making every effort to get all operators to agree to a maximum of 300 barrels per well per day because, according to Mr. Pyles, he must report to the Long Beach Harbor Commission at the end of the month. "At that time, I am going to tell them exactly what conditions are, and if they are not satisfactory, all operators can be certain that curtailment at Wilmington will be mighty hard, if not impossible, to maintain."



E. E. Pyles

The emergency Executive Committee has met with two field committees, at El Segundo and at West Montebello, and operators in both fields have agreed to curtail, El Segundo will come down to the Umpire's allowable, and West Montebello operators have agreed to the 300 barrel-a-day maximum. The result will be a lowering of production by 1300 barrels per day.

Latest success of the Committee lies in the agreement of the larger operators at Signal Hill to shut in their wells for one day each week. A meeting has been called for Thursday, January 12, for all operators in the area in an effort to get them to agree to the proposal, but in the meantime, wells of the larger operators will be shut in. The field has been divided into five areas, one of which is to shut down for 24 hours each week—the No. 1 area on Mondays, the No. 2 area on Tuesdays, etc.

Comparison of production for the first few days of January with the first few days of December shows that approximately 40,000 barrels production per day has been curtailed since the present drive started. While production at present is approximately 25,000 barrels per day more than the low point reached at the end of December, the gain is accounted for by the industry's custom of producing comparatively heavily during the first part of the month and then reducing output during the latter part.

The "Grand Jury" or fact-finding committee, has been holding meetings with various groups and operators in the industry to investigate the whole curtailment set-up. When the committee's investigation has been completed, it will be in a position to recommend changes, if any are needed, in the curtailment structure, and will make its report to the Emergency Executive Committee.

The "Grand Jury" is composed of representatives of the industry and of business interests, this structure being considered to be the best method of arriving at a fair and impartial investigation.

W. S. Rosecrans, former president of the Farmers and Merchants National Bank representing general business, W. H. Geis of the Union Oil Co. representing the purchasing companies, Dana Hogan, president of the Hogan Petroleum Co. representing the San Joaquin Valley operators and the Kern County Chamber of Commerce, and E. G. Starr, president of Universal Consolidated Oil Co. representing the independents, as its members.

Of necessity, this committee's report will not be ready for some time, as its activities consist of a thorough investigation into the whole voluntary curtailment structure in California.

The landowners committee, of which Ralph B. Lloyd is chairman, has the task of reconciling to curtailment various hold-out landowners who demand full production. One immediate success of the committee was permission to one company to reduce its production in a field which the company controls, the net result being about 1000 barrels per day proration.

The necessity back of the present drive to reduce production was brought home to the industry by a recent statement of the Standard Oil Co., which served to warn the industry that the purchasing companies could not continue to purchase and store oil in the great quantities of the past year. Storage during 1938 increased more than 30,000,000 barrels to a total of well over 160,000,000 barrels, with the result that the whole industry was in jeopardy. While there is still production in excess of demand, it is the industry's general opinion that the success thus far attained in curtailment efforts of the past three weeks gives some hope that a collapse can be avoided.

Field Development

Nineteen Thirty-Eight In Retrospect

The year 1938 now being a finished book, it is only fitting that with an eye to the infant 1939 we should thumb through the pages in retrospect.

Heading Los Angeles Basin news of one year ago were new developments in the El Segundo, Long Beach Extension and Yorba Linda fields which were then at boom levels. More significant were items noting that Superior Oil Co., Bankline Oil Co. and General Petroleum Corp. wells had cored oil sand in Long Beach Harbor wells; St. Helens Petroleum Co. had just made a formation test in Monterey No. 20 previewing the sand later to be known as the Sixth Zone in the west end of the Montebello field and Barnsdall Oil Co.'s second Newhall well appeared destined to become a much larger producer than the 150-bbl. Rancho San Francisco No. 1. Union's 11,314-ft. Bell No. 100 at Santa Fe Springs was a disappointingly small well.

In the Torrance field, Chanslor-Canfield Midway Oil Co. had just finished another deepening job with an initial flow of 100 bbls. a day, 27 gravity and clean.

Topping San Joaquin Valley news were Round Mountain extensions by H. A. McDonald and California Western Oil Co.; the discovery of oil sand in Standard Oil's KCL No. 15-1 two miles east of the Ten Section field (now the Canfield Ranch field); the announcement by Standard of its intention to prospect for the Rio Bravo sand by deepening KCL No. 11-2 in the Greeley field and the northerly extension of Fruitvale by Pacific Oil & Gas Development Co. Continental Oil Co. had overcome mechanical troubles and was drilling KCL No. A-2, a wildcat near Wasco, at 11,730 ft.

In Coastal areas, Santa Maria was by far the leader in both interest and activity. Outpost wells were still extending the field on the south and west and the "Hot Spot", section 27, was in its prime. At Oxnard, Vaca Oil Exploration Co. had just finished Lennox No. 1 as a heavy oil producer and Union Oil Co. was pumping 100 bbls. a day from Robertson No. 16, an Eocene test bottomed at 6805 ft.

January

Early in January St. Helens Petroleum Co. brought in Monterey No. 20 at 6353 ft. flowing 2200 bbls. of 36 gravity clean oil and an estimated 10,000,000 cu. ft. of gas. The West Montebello boom was off to a flying start.

During the month several sensational wells were completed in the central portion of the Long Beach Harbor, Bankline Oil Co. setting the pace with U. P. No. 2 which produced at a rate in excess of 10,000 bbls. a day from the Ranger and both Terminal zones. Allied Petroleum Corp., meanwhile, had found the Terminal zones barren at the corner of Broadway and Santa Clara Sts.

Several more small wells were completed in the 5000-ft. zone near Sepulveda Blvd. and Narbonne in the Torrance field and independent operators were beginning to comb the area for new drill sites or old wells to deepen.

In the San Joaquin Valley, Continental Oil Co.'s Wasco passed the former world's record depth of 12,786 ft. and became front page news. Petroleum Securities Co. was drilling a wildcat known as Gatchell No. 1 in sec. 18, 20-16, on Anticline Ridge southeast of the Coalinga eastside field. California's most northerly gas field was discovered when Ohio Oil Co.'s Willard No. 1, located near Willows in Glenn county, blew in out of control while drilling at 4000 ft.

Santa Maria continued to headline coastal activities.

February

During February, activity continued intense in the Long Beach section of the Wilmington field while in the extreme northwest, Gus Pongratz and the Brookline Oil Co. were obtaining good wells in the Ranger zone. Barnsdall Oil Co. was starting something at Rosecrans with the completion of its second large well in the "O'Dea" zone. The same company at Newhall finished Rancho San Francisco No. 2 flowing 1660 bbls., a vast improvement over the small discovery well. El Segundo and Yorba Linda were rapidly passing from the picture.

A new concept of deep drilling was being given the industry by Superior Oil Co. at Rio Bravo where the company's first well had made 10,675 ft. of hole in 70 days. Eocene production was obtained at Kettleman Hills by Superior Oil Co. and Kettleman North Dome Association.

The first valley discovery of the year was credited to the Standard Oil Co. with the completion of KCL No. 15-1 as a 285-bbl. producer on the Canfield Ranch two miles east of the Ten Section field.

March

While March news in the Los Angeles Basin centered largely around developments in the Wilmington and Long Beach fields, some space nevertheless was given a new well being started in the long dormant Potrero field by the Basin Oil Co. Serious threat of overproduction was seen in the Wilmington field where daily production had reached the alarming total of 127,000 bbls per day forcing operators to agree to curtailment. Torrance activity neared boom proportions with the completion of Camp No. 11 for 250 bbls.

All deep well speed records were broken with the completion of Superior Oil's Wagner No. 1 at Rio Bravo in 87 days drilling time at a total depth of 11,265 ft. It was the world's second deepest producer. Continental's KCL A-2 at Waco passed the 14,500 ft. mark.

Santa Maria Valley, second only to Wilmington in activity, showed first signs of lagging interest.

April

High lighting the month of April as well as the entire year of 1938 was the bottoming of Continental Oil Co.'s KCL No. A-2 at the remarkable depth of 15,004 ft. and its subsequent completion from the interval 13,092-13,175 ft. flowing at the rate of 3000 bbls. a day from the Rio Bravo sand (Vedder). The well established new records both for total depth and for producing depth as well as discovering a new field. Two more possibly productive horizons were noted

below that from which the well is yet flowing. Petroleum Securities Co.'s Coalinga Nose wildcat was suspended at 6850 ft. after reportedly finding oil in the Avenal (Eocene) sandstone at 6710 ft.

Completion of MacDonald & Burns, Moore No. 3, for 591 bbls. further stimulated activity in the already booming Torrance townlot field. St. Helens Petroleum Co. completed Monterey No. 24 with initial production of 4200 bbls. discovering the Fifth Zone in the West Montebello area. Several good wells were completed in the O'Dea zone at Rosecrans.

May

The finding of Vedder oil sand in the Greeley field and the apparent discovery of productive Stevens sand in the Buena Vista gas field featured the Valley news for the month of May. Large wells continued to be the rule at Rio Bravo and Union Oil Co.'s Berry No. 1 near Arvin was a commercial failure on production tests.

A deep test of the Huntington Beach Old field failed to obtain production and was plugged back from 7400 ft. D & B Oil Co. cored oil sand in its semi-wildcat located at the intersection of 253rd St. and Vermont Ave. southeast of the Torrance field.

Price cut threat further reduces Santa Maria Valley activity.

June

On the last day of June, Petroleum Securities Co. brought in Gatchell No. 2 flowing at estimated 20,000-bbl. rate discovering the Coalinga Eocene Pool. Bottom was at 6908 ft. in oil sand. The well was the first in several years to discover a major Valley field without benefit of geophysics. Standard Oil Co. completed KCL 11-2 flowing 14,000 bbls. from the Rio Bravo sand, depth 11,520 ft.; the first well to produce from this horizon in the Greeley field. Richfield located Tupman-Western No. 1.

D & B Oil Co. finished its Torrance Extension well at 5275 ft., flowing 350 bbls. of 29.8 gravity oil. The Torrance townlot boom was moving southward resulting in better completions. De Soto Oil Co. spudded a well in the Lovelady area of Signal Hill with the intention of drilling to at least 10,000 ft. Basin Oil Co. completed its Potrero No. 1 flowing 500 bbls. of 47 gravity oil from 4625 to 4645 ft. Superior Oil Co. extended O'Dea zone production south of the bend in Main St. with the completion of Maxwell No. 8. Cooperative curtailment reduced Wilmington production to 92,000 bbls. a day despite new completions.

July

Hilldon Oil Co. completed Dominguez No. 1, a Long Beach northwest extension deep test, at 7786 ft. flowing initially 750 bbls. Poor looking oil sands were found at shallow depths in Tide Water Associated Oil Co.'s Porter No. 1, wildcat located in Aliso Canyon.

Coalinga Eocene Pool hailed as California's most prolific. Tests at 10,100 ft. and 11,100 ft. proved disappointing in Ohio Oil Co.'s Buena Vista deep test.

Union Oil Co. stopped buying Santa Maria Valley crude, virtually closing in the entire field.

August

Silver Strand Oil Co. completed the largest well in the Torrance townlot field, 1270 bbls., while Young & Bryan precluded further southward extension by finding only gray sand at 237th St. The State Supreme Court affirmed Long Beach city tideland titles.

Westerly wells indicated Coalinga Eocene production to be limited in that direction.

Standard Oil Co. Las Flores Land & Oil Co. No. 1 discovered a new heavy oil field in the Cat Canyon area—production 600 bbls. on the pump. General Petroleum Corp. completed Barnard No. 18 in new Ventura Avenue sand.

September

Tar zone wells in the northwest, Ford zone completions in the central area and discovery of new Terminal zone production in the Long Beach Harbor

In 1933 one of the major oil companies bought two Model LE Case oil field engines, similar to the one shown here. Detailed records were kept for periods of 448 and 607 days (24 hours) respectively. For lubrication and maintenance combined the costs were 27 and 24 cents a day. Fuel costs, with gas at 10 cents per thousand cu. ft., were 42 and 49 cents per 24 hours. When inspected recently both these engines were still running "good for many years yet."

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CASE OIL FIELD ENGINES

featured Wilmington for the month. Torrance townlot activity was definitely on the decline while in the southeast extension it became apparent that no large wells would be obtained.

Westerly limits of the Coalinga Eocene Pool became fairly well established while Superior Oil Co. Hight No. 1 extended production a mile to the east. Superior Oil Helbling No. 1, drilled to 14,018 ft. failed to extend the Rio Bravo field to the southeast.

Hancock Oil Co obtained only a small amount of wet oil during tests of Scherer-Dickes No. 1, a wildcat drilled 5593 ft. in the Huasna area of San Luis Obispo county.

October

Tide Water Associated Oil Co. brought in Porter No. 1 flowing 800 bbls. from 5393 ft. discovering the Aliso Canyon field six miles west of San Fernando. Torrance activity began moving east of Narbonne Ave. along 235th St. where several small but satisfactory producers were completed. Richfield Oil Co. further extended the Harbor City portion of the Torrance field by completing Spring No 1 at "Q" and Figueroa Sts.

Richfield Oil Co. Tupman-Western No. 1 and Ohio Oil Co. KCL F-1 cored Stevens zone oil sand at respective depths of 8300 and 9200 ft. Both wells located near Buena Vista Lake in Kern county. Richfield Oil Co. cored oil sand in its Wheeler Ridge deep test, KCL No. 1.

Tide Water Associated Oil Co completed McGonigle No. 11 at 10,935 ft. as the deepest well in the Ventura Avenue field Production was 1860 bbls. Union Oil Co. restored price levels in the Santa Maria Valley field.

November

Ohio Oil Co. completed KCL No. F-1 flowing 720 bbls. of 45 gravity oil and 4,000,000 cu. ft. of gas, thereby discovering the Cole's Levee field. Richfield Oil Co. finished Tupman-Western No. 1 flowing 3752 bbls. of 44 gravity oil and 18,000,000 cu ft. of gas discovering the Tupman field. Standard Oil Co. brought in the second producer in the Wasco field, Mushrush No. 1, flowing 6525 bbls. from 13,138 ft.

Probably saving the West Montebello field from an early death, Hathaway Oil Co. discovered a Seventh zone in Dore No. 1 and Herley-Kelley a fourth finger of the Sixth zone with Masser No. 1. Yields were 475 bbls. and 1700 bbls. respectively.

December

As the stage was set for 1938 in the closing weeks of 1937, so did 1938 make ready for 1939. De Soto Oil Co. completed its Signal Hill deep test at 10,158 ft. with a gas lift flow of 350 bbls. foretelling of renewed activity in the old "Wonder Field". Completions as high as 950 bbls. in the 236th and Walnut sector of Torrance promise a new boom for that field. Southward extension of Rosecrans continues with new wells yielding up to 2000 bbls. New completions indicate the fourth finger of the Sixth zone will be the most prolific yet developed at West Montebello while the possibilities of the Seventh zone are still unknown. Development work is just starting in the recently discovered Aliso Canyon field. Completions in the northwest extension of the Long Beach field and at Potrero will lead to new work early in the year. The City of Long Beach is making ready to develop its tidelands in the harbor area under a program which will eventually call for more than 100 wells; these in turn will force offset drilling by operators of adjacent properties. An 18-well drilling schedule has been laid out by Signal Oil & Gas Co. for the harbor channels.

In the San Joaquin Valley, Richfield Oil Co. was, at the close of the year, preparing to recomplete Tupman-Western No. 1 after cementing off the upper gas cap and was preparing to test for production in KCL No. 1 which apparently discovered a deep producing

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horizon in the Wheeler Ridge area. Recent valley floor discoveries have stimulated wildcatting and should result in the uncovering of several fields in the new year. Developments in the McKittrick area indicate that it will be the scene of at least a mild boom in the near future. Interest, as always, is keen in the Round Mountain-Mount Poso district and it is probable that many new pools will be discovered as well as extensions made to present production. With the Eocene demonstrated to be tremendously prolific at Coalinga, operators are searching for locations where this formation may be tested, another guarantee of continued exploration work.

Richfield Oil Corp. discovered the Potrero Hills gas field west of Rio Vista with the completion of its first well for 5,000,000 cu. ft.

Tide Water Associated Oil Co. set another Ventura Avenue depth record with Hartman 7 which further demonstrated the great possibilities of the field by flowing 1730 bbls. from 11,070 ft.

Particularly gratifying were the State total production figures for December 31 which were 614,900 bbls.; only 6000 bbls. above the allowable. It is believed that during the first week of January an even more favorable balance will be reached further assuring producers of a stabilized price schedule for the new year.

Southern Counties Gas Wilmington Butane Plant

Preliminary tests are being run at Southern Counties Gas Company's new stand-by butane plant, recently completed near the Union Oil Company Refinery in Wilmington, California. No gas has been put into the distribution system as yet, but it is expected that test runs, simulating stand-by emergency conditions, will be made shortly.

The plant will serve as stand-by for the Southern Counties Gas Company's San Pedro district natural gas distributing system, and indirectly as stand-by to the company's entire system, since by supplying butane service to San Pedro consumers during an emergency, an equal volume of natural gas will be released for use over the system elsewhere. It was designed by gas company engineers to provide gas of a heating value that could be used without adjusting the consumers' appliances, air being mixed with butane to bring the heating value down to from 1360 to 1500 B.t.u. per cubic foot.

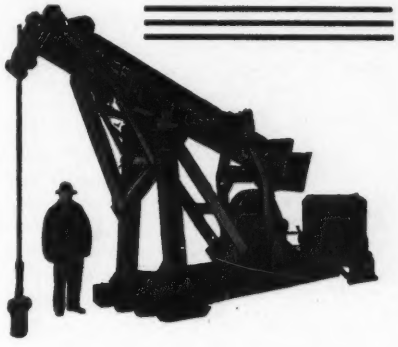
The plant consists of 10 butane storage tanks with a capacity of 375,000 gallons, having a maximum working pressure of 125 lbs. per sq. in.; two Fuller rotary type air compressors, with a combined discharge capacity of 121,000 cu. ft. per hour at 45 lbs. pressure; and two Hall-Scott 180 h.p. gas engines to drive the compressors. This equipment is housed in a steel frame corrugated iron building.

All heat required in the plant for vaporization of the butane is obtained by recovery of heat from the jacket water and exhaust gases of the engines. Mixing of butane and air is controlled by use of fluid ratio controllers. The plant has a total discharge capacity equivalent to 272,000 cu. ft. of 1090 B.t.u. natural gas per hour. Cost is set at approximately $115,000.

E. A. Johnson

Pittsburgh Equitable Meter Vice President Passes Away

Edward A. Johnson, Vice President of the Pittsburgh Equitable Meter Company, died at his home in Bellevue, Pa., a suburb of Pittsburgh, Thursday evening, December 15, at the age of 58. A native of New York City, where he had been associated with the Watson Stillman Company and later as New York District Manager for Duff-Norton Manufacturing Company, Mr. Johnson came to Pittsburgh in 1911 as General Sales Manager for Duff-Norton Manufacturing Company. In 1929 Mr. Johnson joined the Pittsburgh Equitable Meter Company and was well-known throughout the water and gas industries of the country.



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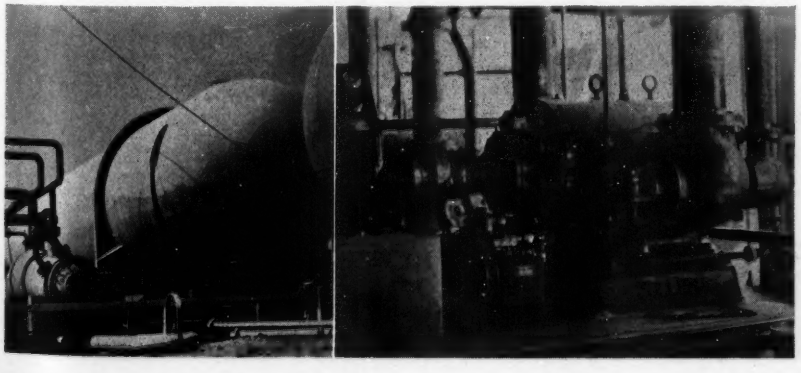

Los Angeles Basin

Statistical Summary of Most Active Los Angeles Basin Fields for 1938

Feld	New Wells	Completions	Abandonments
Wilmington	221	277	4
Torrance	154	158	6
Rosecrans	53	35	10
Montebello	50	38	8
Long Beach	27	48	44
Yorba Linda, E. Coyote & Brea	24	26	10
Huntington Beach	13	17	20
Dominguez	10	25	3
Newhall, Aliso Canyon & Newhall-Potrero	8	5	11
El Segundo	6	28	8
W. Coyote	5	7	4
Richfield	4	5	4
Potrero	3	3	2
Santa Fe Springs	1	8	30
Playa Del Rey	0	2	13
Wildcats	20	...	12

Note: "New Wells" are notices of intention to drill; "Completions" include wells recompleted after redrilling or deepening. In the Wilmington field, many notices of intention to drill were filed prior to January 1, 1938 while actual drilling was done after that date. At Torrance, a large number of wells were deepened while several on which notices to drill were filed were never drilled. Two wildcats obtained production, Tide Water Associated's Porter No. 1 at Aliso Canyon and Towsley Canyon Oil Co. No. 1 at Towsley Canyon but were both officially listed under Newhall. D & B Oil Co.'s Torrance Extension discovery well is carried under the Torrance field.

12 Torrance Completions; New Deep Test Is Started

Of nearly equal interest in the Torrance field are the dozen new completions, topped by Ray W. Wilson's 650 bbls. well, and a Campeet Oil Co.'s deep project on the old Kleinmeyer lease.

Ray Wilson's No. 1, located on 236th St. near Eshelman and adjoining Felix Mallon's No. 2 which flowed over 900 bbls., was bottomed at 5152 ft. and completed with the 5½-in. casing gun perforated below 4820 ft. The initial production of 650 bbls. has been beaned back to 450 bbls. The other new wells, three of which were in the extension area, ranged from 50 to 400 bbls. On the strength of the large wells obtained by Mallon and Wilson, many new wells are now drilling in the 236th and Eshelman sector while the small completions obtained in the extension have tended to reduce activity in that area.

Much interest is being aroused by Campeet's preparations to deepen the old Richfield Oil Corp. Kleinmeyer No. 17A which is located approximately 900

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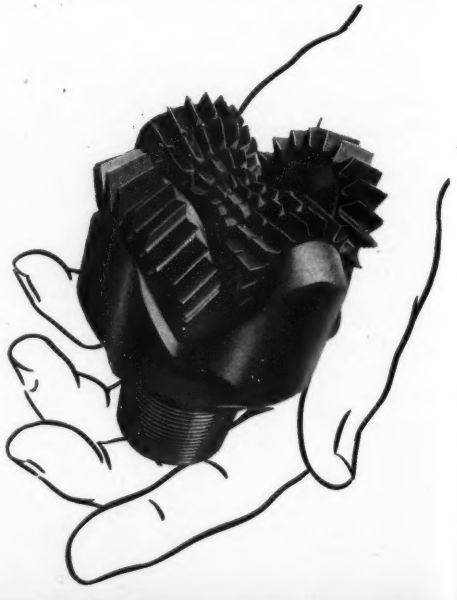

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ft. north and 700 ft. east of the intersection of Sepulveda Blvd and Normandie Ave. In this area, which has not yet been tried for deep production, leases are much larger than in other portions of the field.

Wilmington Curtails To 81,000-Bbl. Rate

New curtailment efforts in the Wilmington field have reduced total field production from close to the 100,000 bbls. level to slightly over 81,000 bbls. daily. Though lower than at any time since the opening of the Long Beach harbor district a year ago, the figure is still 11,000 bbls. in excess of the umpire's allowable for the field.

Six wells have recently been completed in the field, three in Terminal zones, two in the Ranger and one in the Ford zone. General Petroleum Corp. was responsible for two of the Terminal wells while Hollywood Oil Co. obtained the third on its Baxter lease; all in the Long Beach harbor area. Both Ranger zone completions were by Union Pacific Railroad Co. on its large fee property. The Ford zone well was also a U. P. project, well No. 94. Located on a southerly extension of Pioneer St. in Wilmington, the hole was bottomed at 5623 ft. and plugged to 5596 ft. where casing was landed which was perforated at intervals below 5100 ft. Production is 150 bbls. of 29 gravity oil cutting 8%.

Several new projects have been held up pending issuance of city permits. Unexpected delays have been encountered in receiving bids on the municipal tidelands and in development of the harbor channels.

Four in 4th Finger Finished Flowing

The completions of four excellent wells from the Fourth Finger of the Sixth zone were the recent highlights of news from the West Montebello field. Largest of the group was St. Helens Petroleum Co.'s Monterey No. 28, which, producing 75 ft. to bottom at 6729 ft., flowed 2042 bbls. of 37 gravity crude cutting 2.6% and 1,450,000 cu. ft. of gas before beaning back for curtailment. Approximately the same interval was produced in the other three wells which were completed with the following initials: West Montebello Oil Co., Montebello No. 1, 1175 bbls., 5%; Montebello Wesco No. 1, 800 bbls. clean; and Brookline Oil Co., Drake Comm. No. 1, 400 bbls., clean. Both latter wells probably have potentials in excess of their actual production. Sixteen more wells are either drilling or testing for production.

Signal Hill Quiet Despite Many Rumors

Despite the many rumors of new deep tests following the completion of De Soto's 10,158 ft. well, Signal Hill remains at a low ebb in field activity. The recently completed deep test is yet flowing on the gas lift with production approximately 350 bbls. daily; hardly enough to stimulate a new drilling boom. Drilling has been suspended in the Geo. Parry intended deep test at 5610 ft. Near 27th and Walnut, J. P. Massey and Associates placed their No. 1 on the pump with a yield of 125 bbls. of 24 gravity clean oil from 4645 ft. Other work in the field is limited to reconditioning or redrilling old wells.

Deep Well Tests Wet In Rosecrans Field

Obtaining only water on a production test, Superior Oil Co.'s Maxwell No. 12 proved a disappointment recently. Drilled to 8850 ft., a drillable liner was cemented on bottom and gun-perforated at intervals. With the hole plugged to 8430 ft., another test was wet and an attempt is being made to locate the point of water entry.

The field's other deep well, Barnsdall Oil Co., Rosecrans No. 10, plugged bottom from 8747 ft. to 6168 ft. and with a five foot interval perforated below 5960 ft. completed on the gas lift flowing 220 bbls. of 35 gravity oil cutting 34%. Previously, lower horizons had been found wet.

J. Lloyd O'Donnell's No. 47 and Hydro-Carbon Products Co.'s Cole No. 1 at identical depths, 7750 ft., were wet on production tests and are standing recemented. Royalty Service Corp. is preparing to complete Gordon No. 3 at 7835 ft. after cementing 8⅝-in. water string at 7714 ft. Union Oil Co. finished Rosecrans No. 27 with 117 ft. open to bottom at 7810 ft. flowing 650 bbls. of clean oil. No. 29 on the same lease was completed at 7765 ft. as another good well.

Three Wells Start In Aliso Canyon Field

In the Aliso Canyon field, where Tide Water Associated's discovery well is flowing 250 bbls., three new wells are preparing to drill. Standard Oil Co. has derrick built for Ward No. 1, Union Oil Co. has foundations for Santa Susana-Orcutt No. 27-1 and Tide Water Associated is grading for Porter No. 2; all in sec. 27, 3n-16w and offsetting the original well.

Continued tests in the Carmenita wildcat of John McKeon and Associates have resulted only in the recovery of salt water. Depth is 8962 ft.

LOS ANGELES BASIN WILDCATS

Area	Well	No.	Section	Depth	Status
Athens	Entrikin, W. E.	1	7, 3-13	6520	Drilling
Bellflower	Clayton, Geo. L., Scott	1	32, 3-12	6897	Idle
Castaic	Royal Land Corp.	1	8, 4-17	1338	Drilling
Dominguez	Richfield Oil Corp.	1	2, 4-13	6990	Drilling
La Mirada	DHB Oil Co., Heath	1	34, 3-11	6150	Abandoned
	John McKeon and Assoc. Carmenita	1	21, 3-11	8962	Testing
Mojave	Mojave Pet. Co., Gorman	1	5, 8-18	470	Idle
	Jennings	2	33, 5-14	470	Idle
Newhall	Continental Oil Co., Newhall	1	20, 4-17	2616	Abandoned
	Mangrum and Page, Lintz	1	4, 3-15	150	Drilling
	Newhall Drlg. Asso., Needham	4	13, 3-16	3505	Cleaning out
	Palmluck Oil Co.	1	23, 3-16		Rig
Palmdale	Neu-Cal	1	17, 6-12	1170	Idle
Palos Verdes	Gene McLaren	1	27, 4-14	3992	Abandoned
	Rolling Hills Pet.	1	27, 4-14	5100	Idle
Santa Monica	The Texas Co., A-S	1	9, 2-15	7285	Redrilling
San Pedro	Grady, R. T.	1	23, 5-14	650	Drilling
Whittier	Langstaff, Geo. W., Iliff	1	8, 2-11	2250	Idle
	H. C. Oil Co., Joyce	1	22, 2-11	500	Drilling
	Orange County				
Anaheim	The Texas Co.	A-13-1	8, 4-10	5000	Drilling
Bolsa Chica	New Fields Oil Co.	1	16, 5-11	4100	Idle
Corona del Mar	Shell Oil Co., Irvine	1	6, 7-9	3108	Abandoned
	Shell Oil Co., Irvine	2	6, 7-9	1750	Drilling
Costa Mesa	A. V. Oil & Gas Co.	1	16, 6-10	4751	Idle
	San Bernardino				
Carbon Canyon	Carbon Canyon Oil Co.	1	30, 2-8		Rig
Chino	So. Counties Pet. & Drlg. Co.	1	25, 2-8	2800	Idle
	San Diego County				
Carlsbad	Dauphin Dev. Co., Kelly	1	16, 12-4	920	Drilling

San Joaquin Valley

Richfield Oil Swabs Wheeler Ridge Test

Richfield Oil Corp. is attempting to complete what may be its second major discovery well within a 45 day period. KCL No. 1, deep edge test of the Wheeler Ridge field, has plugged bottom from 9272 ft. back to the upper interval 8567-8765 ft. where a production test is being made. When last reported, mud and fresh water was being swabbed from the hole. Oil and gas content of the fluid was rapidly increasing. A formation test of this horizon last month recovered 75 stands of fluid, each of which was 40 gravity oil.

Superior Cagle Extends Coalinga Eocene North

Extending the East Coalinga Eocene Pool nearly a mile to the north, Superior Oil Co.'s Cagle No. 1 is reported to have encountered rich Gatchell oil sand at 7120, and to have bottomed at 7142 ft. to set casing for a production test. The Green Sand or Glauconite marker is said to have been cored at 7025 ft. If the well lives up to present indications, properties of several operators not here-to-fore considered in the play will become practically proved. Located 330 ft. north and 330 ft. west of the south quarter corner of sec. 6, 20-16, the well topped the Eocene pay approximately 590 ft. lower than Robert S. Lytle's No. 7-7F which is located 990 ft. north and 330 ft. east of the southwest corner of sec. 7, 20-16 and is one of the structurally high wells in the field.

Within the proved area, Robert S. Lytle is drilling No. 71-18F, sec. 18, below 7000 ft. and is coring for the oil sand in No. 37-7F in sec. 7. The latter well was last reported at 6775 ft. Standard Oil Co.'s easterly outpost, No. 1-17F in sec. 17 is nearing the Gatchell sand at 7700 ft. while the company's westerly edge well, No. 71-13C in sec. 13, 20-15, is drilling at relatively shallow depths.

Richfield Recompletes Tupman Discovery Well

With initial flow gauged at 2112 bbls., Richfield Oil Corp. recompleted its Elk Hills-Tupman discovery well, now called Western A-32-32, on the fourth of January, 1939. The oil tested 45 gravity and was free of water. Gas production at the maximum rate through two 1½ in. beans was nearly 8,000,000 cu. ft. With one 46/64 in. bean, flow was 1352 bbls. of oil and 7,598,000 cu. ft. of gas with 950 lbs. on the tubing and 1650 lbs. on the casing. The well was originally completed at 8677 ft. with 8⅝ in. water string cemented at 8406 ft. and a 4¾ in. liner including 280 ft. of perforations landed on bottom. The yield of 3752 bbls. of oil and 18,000,000 cu. ft. of gas was considered to have an unbalanced gas-oil ratio so the well was killed and the liner pulled. A new liner containing 128 ft. of perforated was landed at 8677 ft. and cemented through perforations at 8523 ft. but apparently has only succeeded in shutting off part of the flow without improving the ratio. The producing horizon is the equivalent of the Stevens zone first discovered in the Ten Section field.

Location has been staked for No. A-52-32, both wells being in sec. 32, 30-25, only a mile east of the old Elk Hills field.

Standard, Hall-Baker Strike McKittrick Gas

Further stimulating the mounting interest in the McKittrick area, two wells recently struck high pressure gas sand causing disaster for one. Standard Oil Co. No. 31, located in sec. 7, 30-22 and an offset to Franco-Western's 350 bbl. producer, blew out and burned while pulling drill pipe from 2050 ft. The Hall-Baker well, located in sec. 2, 30-21, was brought in under control flowing 1,350,000 cu. ft. of gas with a spray of oil and water from 1345 ft.

Westco Petroleum Co. is drilling below 4000 ft. in its deep test of sec. 34, 30-22. E. D. Robertson, heading Mainland Oil Co., is planning a well for sec. 23, 30-21.

Don Angle Suspends McVan Vedder Test

Finding the Vedder zone barren at 3400 ft., Don Angle suspended operations on Claflin No. 2, McVan area deep test located in sec. 10, 27-27. Hole was bottomed at 3430 ft.

Another east side test, Shell Oil Co.'s S.P.L. No. 1, seemed destined for failure when it entered Walker sand near 3500 ft. No Vedder was found in this well which is located six miles southeast of Round Mountain in sec. 7, 29-30.

SAN JOAQUIN VALLEY WILDCATS

Fresno County

Area	Well	No.	Section	Depth	Status
Coalinga	American Oil Fields, Inc.	1	16, 19-15	250	Idle
	Foreign Oil Co.	6	6, 21-15	225	Idle
	Jarvis, Leo P.	2	14, 20-14	218	Idle
	Progressive Oil Co.	3	20, 19-15	623	Drilling
	Stuart Oil Co., Stuart	1	12, 21-14	1285	Drilling
	Tide Water Assoc. Oil Co., Fleishacker	1	1, 19-15	7378	Drilling
Jacalitos Hills	Dauphin Dev., Ragan	1	30, 21-14	4587	Idle
Mendota	Pierce, Cyrus, Shorb	1	16, 14-12	1580	Idle

Kern County

Arvin	Superior-Standard-Texas, Jewett	1	16, 31-29		Location
Buttonwillow	Calif. Explor. Co., Salisbury	1	7, 29-24	10900	Drilling
Canal	Shell Oil Co., KCL	B-87	4, 30-25	10613	Drilling
Coles Levee	Ohio Oil Co.	KCL-F2	10, 31-25	3228	Drilling
	Standard Oil Co.	KCL 20-1	9, 31-25		Rigging up
	Tide Water Associated	KCL-1	14, 31-25		Location
Devil's Den	Amerada Pet. Co., Beer	6	21, 26-19		Rigging up
	Emigrant Hill Oil Co.	1	24, 25-18	4104	Cleaning out
	Herzog, Raymond D.	1	27, 25-18		Rig
	Gibson Oil Co., Alferitz	3	14, 25-18	1230	Producing
	Goodrum, Geo., Baron	1	24, 25-18	1210	Idle
Edison	Hillview Oil Co., El Tejon	1-A	27, 30-30	595	Drilling
	Renner & R.H.L. Oil Co.	1	27, 30-30	2550	Idle
	Superior Oil Co., Clerico	1	26, 29-28		Rig
Elk Hills	Richfield Oil Corp., Tup.-W	1	32, 30-25	8677	Testing
Grapevine	Petrol Corp., Reserve	33-5	33, 11-19	6988	Idle
	Richfield Oil Corp.	KCL-1	28, 11-20	9272	Testing
	Tide Water Assoc. O. Co., S.P.	2	15, 11-19	6350	Drilling
Lerdo	Texas Co.	KCL 35-1	35, 28-26	980	Drilling
McClung	Superior Oil Co.	KCL-12	3, 30-26	10620	Drilling
Mt. Poso	Vendome Oil Co.	1	28, 26-28		Rig
Midway	Fried, Julius	1	34, 32-24	5031	Testing
Union Ave.	Richfield Oil Corp., Union Ave.	1	6, 30-28	8746	Drilling
Upper Kern River	Rufener, Jules, Julianne	1	2, 29-29	1440	Idle
	Shell Oil Co., S.P.L.	1	7, 29-30	3100	Drilling

Two New Wells Started In Lost Hills Field

Two new projects have been started in the Lost Hills field which has been unusually quiet of late. In sec. 24, 26-20, California Lands, Inc. is preparing to drill Occidental No. 2 which will be carried down in search of deep production, while in the north tip area, Tide Water Associated Oil Co. has derrick up for Williamson No. 11R in sec. 2, 26-20.

Texas Spuds New Lerdo Wildcat

Continuing its northwest Fruitvale exploration program, The Texas Co. has spudded KCL No. 35-1 in sec. 35, 28-26. The new test is located three miles south of the Lerdo school and nearly the same distance northwest of the company's Camp-West-Lowe No. 1 which was recently abandoned at 10,156 in basement rock.

Three Produce in Midway Field

Completed recently in the Midway field were National Oil Co. No. 31 for 165 bbls., Texas Co. No. 102 for 35 bbls. and Union Oil Co. Williams No. 5 for 154 bbls.

Amerada Pete Enters Coalinga Activity

Joining the general stampede to the Coalinga area, Amerada Petroleum Corp. has started work on an important new wildcat to be drilled in the southwest quarter of sec. 17, 19-16, north of the present Eocene development and east of the old Coalinga East Side field. The test will be known as S.P.L. No. 7-17 and will prospect for an equivalent of the Gatchell sand.

In the old Coalinga West Side field, General Petroleum Corp. finished Esperanza No. 101 at 1169 ft. pumping 40 bbls. and is preparing to complete No. 102 at 1300 ft. Both wells are in sec. 6, 20-15.

New Life Stirs In Devils Den Area

Completion last month of a small well by Gibson Oil Co. has led to a renewal of activity in the Devil's Den area. Amerada Petroleum Corp. has spudded a sixth test of the Beer property in sec. 21, 26-19 and Raymond D. Herzog is reported to be drilling in sec. 27, 25-18. Emigrant Hills Oil Co., headed by Ralph Gorman, is deepening the old Pyramid will in sec. 24, 25-18.

P. & M. Start Work In Wheeler Canyon

Preliminary grading work has been started by P & M Oil Co. for an exploratory well to be drilled in Wheeler Canyon near Ojai. The coordinate location is reported as 1500 ft. south and 1800 ft. east of the northwest corner of sec. 24, 4-22.

Texas Drills Sheills No. 136

Late reports from the Sheills Canyon field are to the effect that The Texas Co. is drilling Sheills No. 136 at 2540 ft. El Rancho Oil Co. has derrick erected for a second well on the Elkins property in sec. 9, 3-19.

Joint Test Scheduled For Arvin District

Joining hands for the purpose of further exploration work in the interesting Arvin area are Superior Oil Co., and Standard Oil Co. Location for the new test, on which work is scheduled to start at once, has been staked in the northeast quarter of sec. 16, 31-29 near the Union Oil Co. Berry No. 1 which obtained a small amount of oil.

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This tool gives you faster jobs at lower cost . . . eliminates time spent in running drill pipe or tubing strings . . . prevents loss of cement . . . cuts the cost of preliminary hole conditioning . . . and eliminates the necessity for cleaning out excess cement when the job is finished.

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Coastal District

Rains Damage Ventura Roads

Repairing rain damaged roads is the occupation of nearly all Ventura county wildcatters after the recent heavy downpour caused more than the usual early season havoc. With the exception of Merchants Petroleum's Cochrane No. 8, which is drilling at 1600 ft., every well in the Sespe district was virtually isolated. Newest entry to the region is Neill Roy Anderson who has filed a notice of intention to drill in sec. 6, 4-19.

Sta. Barbara County Wildcats Reported

With the utmost secrecy Richfield Oil Co. is drilling Tinaquaic No. 1 in sec. 36, 9-32, Foxen Canyon area. Depth of the hole is said to be 3350 ft. but no reports as to formations encountered are available.

In the Carreaga district, Douglas-Stratton Oil Co. No. 1 found formations wet between 5745 and 6300 ft. and is preparing to run a liner to bottom at 7238 ft. and cement through perforations at 6450 ft. The well adjoins the Arnold-Apache well which was completed last year pumping 65 bbls. a day.

Offsetting General Petroleum's Erburu lease to the east, Litho Oil Co. is rigging up to drill Rhode Island Estate No. 1, its first well in the Capitan area.

Oil Group, Inc. has not yet spudded Hyland No. 1 for which derrick was built last month near the town of Summerland. Not far distant Swartout Oil Co. is spudding a well with cable tool equipment.

If any credence can be given rumors, several new wildcat tests will be started soon within the county.

Trans-Oceanic Drills Second Mesa Field Well

Following the recent completion of Mdivani No. 1 as a small producer in the Santa Barbara Mesa field, Trans-Oceanic Oil Co. moved equipment to No. 2 which is now drilling at 1150 ft. Outside of occasional cleanout jobs, there is no activity in the field.

Deepening Job Started In Stanislaus County

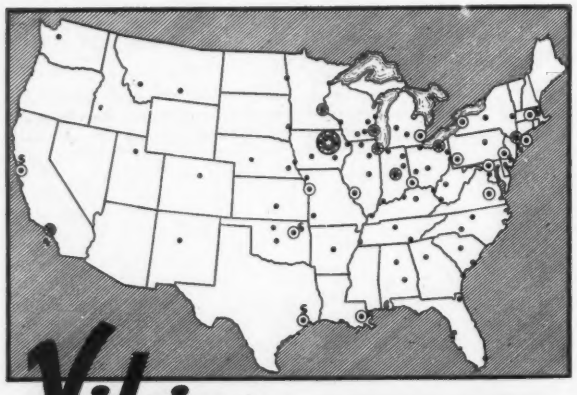
Santa Maria Petroleum Corp. of Berkeley, is cleaning out the old Northern Petroleum Corp. well preparatory to deepening below present bottom of 2250 ft. Location is in sec. 34, 1s-10e near Oakdale, Stanislaus county.

Fox No. 1 Abandoned By Ridge at Rincon

The attempt of Ridge Oil Co. to develop production on a new structure north of the east end of the Rincon field ended in failure with the recent abandonment of Fox No. 1 at 8021 ft. The well, located in sec. 9, 3-24, found no horizon worthy of a production test.

Edison 32 Flows 3000 at Ventura Avenue

With an initial production of 3003 bbls. a day oil and 2,290,000 cu. ft. gas, Shell Oil Co. brought in Edison No. 32 as the largest recent completion in the Ventura Avenue field. Bottomed at



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8470 ft., an 808 ft. liner perforated in several intervals below 7666 ft. was installed.

Tide Water Associated Oil Co. obtained 1645 bbls. from Lloyd No. 126 which was finished at 10,115 ft. Gas production was 2,002,000 cu. ft.

Lloyd Corp.'s No. 2, which has been standing idle at 7303 ft. after making an unsuccessful production test from the plugged depth of 7060 ft., is rigging up with new equipment to deepen.

NORTHERN COUNTIES WILDCATS

County	Well	No.	Section	Depth	Status
Madera	Amerada Pet., Core Hole	A	32, 11-12	4750	Abandoned
Monterey	Anderson, A. A., Hillman	1	15, 24-14	4004	Idle
Solano	Richfield Oil Corp., Potrero	1	10, 4-1	5334	Completed gas well
Stanislaus	Orestimba Oil Co.	1	12, 7-7	1550	Idle

COASTAL COUNTIES WILDCATS

Area	Well	No.	Section	Depth	Status
	Santa Barbara County				
Capitan	Litho Oil Co., Rhode I.	1	4, 4-30		Rig
Carreaga	Douglas-Stratton Oil Co.	1	8, 8-33	7240	Idle
Foxen Canyon	Richfield Oil Corp., Tinaquaic	1	36, 9-32	3230	Drilling
Gaviota	Gaviota Oil Co., Hollister	1	35, 5-33	3215	Idle
Gato Ridge	Barnsdall Oil Co., Mag.	5	9, 8-32	3035	Idle
	Pezzoni	1	15, 8-32	4494	Idle
Summerland	Oil Group, Inc., Hyland	1	16, 4-26		Rig
	San Luis Obispo County				
Edna	Loma Grande Oil Co., Lewis	1	28, 31-13	2125	Idle
Elk Horn	Calif. Pet. Prod. Co., Irons	1	19, 10-24	1825	Drilling
	Lee, Harry, Defiance	1	7, 32-22	290	Idle
	Western Plains Oil Co.	1	7, 31-21	4010	Idle
Huasna	Hancock O. Co.,Scherer-Dickes	1	30, 12-33	5593	Idle
Paso Robles	Vanguard Oil Co., Clark	1	26, 27-14	4950	Idle
	Epco., Inc.	1	27, 26-13	3750	Drilling
	Ventura County				
Ojai	High Mesa Oil Co.	1	16, 4-22	1770	Drilling
Red Mountain	Martin, J. W.	3	15, 4-21	1250	Idle
Sespe	Drain Oil Co., Cosby	1	14, 4-19	1120	Cleaning out
	Claran Oil Co., Hardison	1	22, 4-20	2450	Drilling
	Commander Oil Co.	7-F	13, 4-19	575	Idle
	Crystal Oil Co., Crystal	1	35, 5-20	250	Idle
	Ivers, H. A., Kentuck	14	1, 4-20		Location
	Merchants Pet., Cochran	8	1, 4-20	1550	Drilling
	Speik Oil Co.	1	33, 5-19	3637	Idle
	St. Louis	1	1, 4-20	2000	Drilling
Shiells Canyon	The Texas Co., Shiells	136	4, 3-19	1550	Drilling
	El Rancho Oil Co., Elkins	2	9, 3-19		Rigging up
South Mt.	Clipper Oil Co.	1	17, 3-20		Rig
Tar Creek	Section 20 Oil Co.	1	20, 5-19	2400	Drilling
Timber Canyon	Stallings, Senter, Ahlberg	1	24, 4-21	1445	Idle
Ventura	Ventura Drilling Co.	1	10, 3-23	2285	Drilling
	Ventura Exploration Co., Sexton	1	30, 3-22	9511	Testing, Idle
Wheeler Canyon	P & M Oil Co.	1	24, 4-22		Location

More L. A. Basin Patos Will Drill Bolsa Chica Test

Patos Drilling Co., a newly organized Los Angeles company, has started work on a new test of the topographic high point back of the Bolsa Chica Gun Club between Huntington Beach and Sunset Beach. To be known as Graham No. 1, the well will be drilled approximately 1000 ft. south and 500 ft. west of the center of sec. 21, 5-11 near the old Painted Hills well which went to 3200 ft. in the early 1920s. According to Robert Schlauderman, company official, the location was chosen on the basis of geophysical work done by Hawaiian-American Exploration Co. which indicated the area to be an upthrown fault block. Production is expected in either or both the Ashton and Bolsa sands of the Huntington Beach field, which, if data proves correct, will be found between 4000 and 5000 ft.

While general freight trucking in the United States in August was .84% below August 1937, petroleum shipments by truck were 17.36 per cent higher.

General Electric Promotes Pacific District Offices

R. M. Alvord, J. E. N. Hume and A. S. Moody have been appointed commercial vice-presidents of the General Electric Co., at a meeting of the board of directors, it was announced recently by Gerard Swope.

Mr. Alvord is manager of General Electric's Pacific district, consisting of California, Arizona and Western Nevada. Graduated from Iowa State College in

R. M. Alvord

1904 with the degree of Bachelor of Science in electrical engineering, he immediately entered the G. E. test course at Schenectady and in 1906 was transferred to San Francisco as a salesman. He became manager of the supply department there, then manager of the San Francisco district office and in 1936 manager of the newly created Pacific District of the company.

Mr. Hume has been manager of the industrial department of the General Electric Co. since December, 1935. A native of Virginia, he was graduated from the University of Virginia in 1906 with the degree of electrical engineer. He entered the company's test course the following January and upon completion saw service in the switchgear and lighting departments in its Baltimore office. He entered the industrial department in 1912, then known as the power and mining department and in 1928 was made manager of the motor division and the following year assistant manager of the department.

Mr. Moody has been manager of the Northwest District of the company since 1936, prior to which he was manager of

the Northwestern territory. He was graduated from the University of California in 1906 with the degree of Bachelor of Science in electrical engineering and started work as a salesman in the San Francisco office of the Stanley G. I. Co. the same year. In 1907 he went with the supply department of the General Electric Company at its San Francisco Office and the following year transferred to the Seattle office. In 1910 he was made manager of the supply department at the Portland office and in 1913 became assistant manager of the Portland Office. In 1923 he was appointed manager of the Los Angeles office and in 1924 manager of the Northwestern territory.

Interpretive Bulletin No. 1 has been issued by Administrator Andrews as a "general statement as to the coverage of the Fair Labor Standards Act of 1938". Copies of the bulletin are available at the offices of the California Oil and Gas Association.

Imports into Germany of 1,007,000 metric tons of petroleum for the United States in 1937 made this country the most important source of such imports, according to the U. S. Department of Commerce.

Byron Jackson Makes Champion Vice President

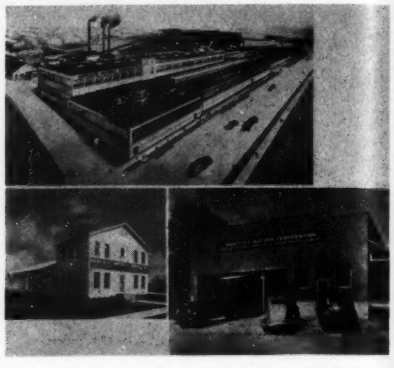
E. S. Dulin, President, announces the election of Frank Champion as a Vice President of Byron Jackson Co., with

Frank Champion

headquarters after January 1, 1939, at Houston, Texas where he will be the ranking officer of the company.

Mr. Champion also retains his duties of General Sales Manager of the Oil Tool Division of Byron Jackson Co.

Thirteen and one-half cents out of every dollar of state taxes paid by highway users in 1937 was assigned to uses other than highways, according to statistics from state authorities collected by the Bureau of Public Roads of the U. S. Department of Agriculture.



Top, factory and general offices of Hercules Motors Corp., Canton, Ohio. Left., Hercules Motors Corp. sales and service branch at Kilgore, Texas. Right, Hercules Motors Corp. Mid-Continent oil field headquarters, Houston, Texas.

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WORKHOLDERS
on these new all steel malleable alloy RIDGID Threaders

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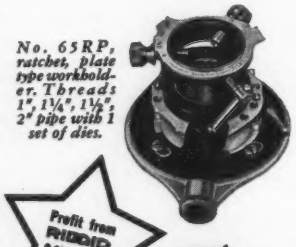
For smooth fast perfect threading, see the new RIDGID 65s. Get the whole story — call your Supply House. If they can't supply you yet, write for our new threader folder, sending your Jobber's name.



No. 65RP, ratchet, plate type workholder. Threads 1", 1¼", 1½", 2" pipe with 1 set of dies.

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No. 65 RC, ratchet, cam type workholder. Threads 4 sizes of pipe with 1 set of dies.

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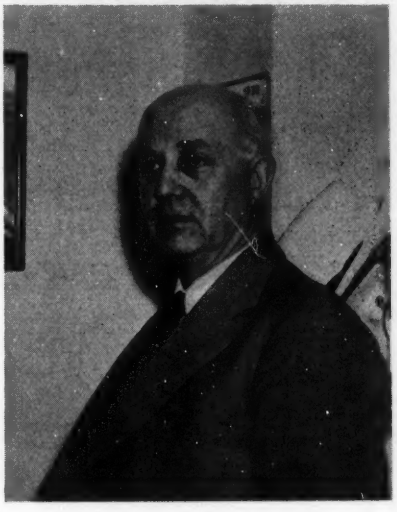
A. P. I. Annual Convention Abstracts

Sub-surface Sampling, D. L. Katz. Abstract: This paper is an abstract of the Report of the Sub-Committee on Fundamentals of Obtaining, Transporting, and Analyzing Sub-surface Samples of Crude Oil prepared for the Topical Committee on Production Technology. It discusses the fundamental principles underlying the behavior of complex hydrocarbon systems for the purpose of providing a basis for critical review of the methods of obtaining, transporting, and analyzing sub-surface samples of crude oil. Recommended terminology and methods of reporting data on subsurface samples are included.

The Suitability of Several Casing Steels for Field Welding, L. R. Hodell. Abstract: Approximately 200 joints of casing representing 6 different steels have been welded under field conditions, and quenched at varying time intervals after breaking of arc. Results indicate that the various steels respond differently to the quenching. As a result of comparing manner in which they respond with the exigencies of field practices, certain of these steels are considered weldable and certain others are not weldable when used in the field welding of casing. In order to establish a standard, a test procedure has been proposed for the purpose of determining the field weldability of various casing steels.

Factors Influencing the Application of Pumping Units, Emory Kemler. Abstract: The application of pumping units on the basis of peak-torque requirements is the most satisfactory method available to date. Actual well tests included show that the use of maximum well load for figuring peak torque does not give representative results at higher speeds. The theoretical investigation of the effect of prime mover on peak torque shows that the engine coefficient of fluctuation should be the basis for correcting horsepower ratings, rather than the number of explosions per minute. The API specifications state that the rating of gear units applies only when there is an absence of torsional vibrations. This paper gives a theoretical investigation of this problem, and shows that torsional vibrations can exist in the geared systems as used on pumping units. Experimental data given show that, when rotary counterbalance is used, these critical speeds or torsional vibrations can exist.

Nature and Importance of Surface Forces in Production of Petroleum, Frank C. Benner, Wesley W. Riches, and F. E. Bartell. Abstract: The nature and importance of the surface forces active in reservoirs in which the pore sizes fall within the range of capillary dimensions



J. B. Case

J. B. Case, of the Los Angeles offices of the State Division of Oil & Gas, was born in Nebraska in 1880 and came to California in 1893. His education was received at Garden Grove grammar school, Fullerton high school, and the University of California, College of Mining, where he received his degree in 1906. Mr. Case was employed by the Arondo Gold Mining Co., in 1907 and in 1909 he went to the Columbia Oil Producing Co., at Olinda. In 1917 he became an inspector of the Oil & Gas Division of the State Mining Bureau, in Los Angeles. In 1918 he was transferred to Taft as petroleum engineer. In 1919 he was appointed deputy supervisor at Coalinga, and in the following year he was made chief deputy, the position he now holds.

are discussed. In reservoirs where the area to volume ratio is relatively great, surface forces become a factor of considerable magnitude in the production of oil. The fundamental concepts of surface forces are reviewed, with particular reference to systems in which crude oil is one of the phases present. Problems of interest to petroleum technologists are of two types: those concerning the static condition of virgin reservoirs, and those involving the dynamic relationships in flowing wells. Particular emphasis is placed on the role of surface forces in the effective utilization of advancing edge water. The optimum rate of water advance into oil-bearing sands is a function of many factors. The rate at which water can strip oil from the sand is one of the most important, and is related directly to the surface properties of oil, water, and sand. Trapping of oil by by-passing is considered. The phenomenon of "counterflow" in capillaries of different sizes is discussed from a theoretical viewpoint. Experimental studies on this phenomenon are also presented. It is shown that the proper balance between surface forces and other forces active in the reservoir is a deciding factor in controlling rates of production for optimum recovery.

The Value of Soil-Survey Methods, J. M. Pearson. Abstract: The paper summarizes the type of information upon which modern-soil-corrosion tests are made. From this background two appoaches are open to the corrosion technologist. He may: 1, examine data on corrosion experience to deduce certain constants to define soil corrosiveness; or, 2, he may correlate these constants (corrosivity) with soil measurements made in the field. Having established those criteria most suitable to the corrosion survey required, a method is described that will evaluate the survey in terms of operating costs and investment charges. The work of many able investigators is discused in the hope that corrosion technologists will become interested in making quantitative measurements of the effects of corrosion in different soils. How this may be done is indicated. Some of the pitfalls awaiting unwary users of statistical formulas are noted, and a method by means of which extrapolations can be criticized is given.

Annual Report to the Board of Directors of the American Petroleum Industries Committee, by Baird H. Markham, Director. Abstract: The petroleum industry is interested vitally in highway transportation, because this transportation constitutes the industry's chief market. The constantly improved quality and steadily reduced price of petroleum products have contributed directly to the general utilization of the motor vehicle by 26,000,000 motorists. The phenomenal increase in the number of motorists has brought its problems. Foremost was the construction of adequate highways to accommodate the unprecedented flow of traffic, and especially the financing of such highways. The petroleum industry and the consumers of its products have accepted reasonable taxation and legislation for the sound development and the support of the highways and highway transportation. In recent years, however, increasingly-excessive tax burdens and unreasonable restrictions have prompted vigorous protests, and have created an acute tax-consciousness which

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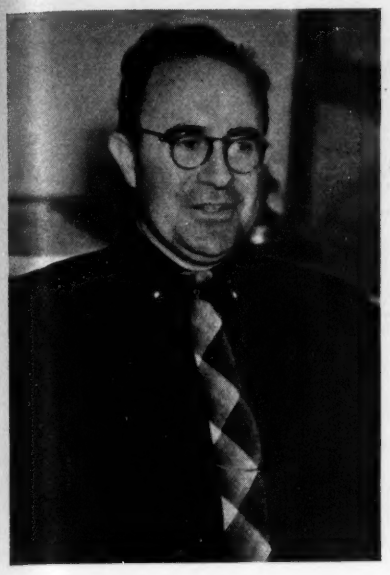
resulted in the formation of the American Petroleum Industries Committee. The Committee was organized so as to enable the petroleum industry and the

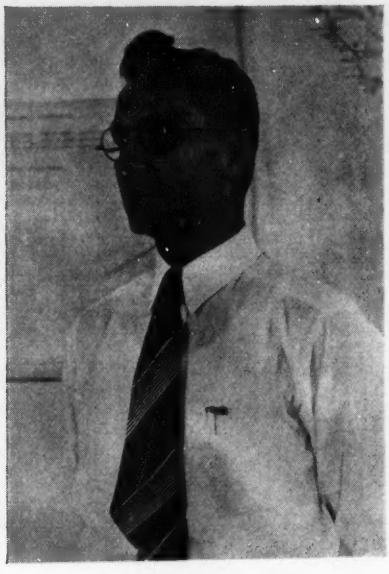


Cecil L. Barton

Cecil L. Barton, of the Los Angeles offices of the California Division of Oil & Gas, was born in Fresno, Calif. In 1917 and 1918 he served in the Coast Artillery, Hawaiian Islands. In 1920 he graduated from Long Beach High School, and in 1928 he received the degree of Bachelor of Science in Petroleum Engineering at the University of California. Mr. Barton has been with the Division of Oil & Gas since 1928, and is now in the fourth year of law school at Southwestern University.

consumers of its products more effectively to exercise their rights as citizens of a democratic country. It provides a medium for opposition to measures imposing unduly burdensome taxation or unnecessary restriction, and is a rallying point in the support of proposals for an equitable distribution of the cost of government and the financing of highways. This report sketches the evolutionary development of the various problems upon which the committee has taken a definite stand, and explains the logic and the reasons underlying the committee's position.

Partial Volumetric Behavior of the Lighter Hydrocarbons in the Liquid Phase, B. H. Sage, B. L. Hicks, and W. N. Lacey. Abstract: The prediction of the specific volume of homogeneous and heterogeneous complex hydrocarbon mixtures is of importance to the petroleum technologist. The partial specific volumes of each of the components in both the liquid and gas phases are of value in making such predictions. The partial volumes of the paraffin hydrocarbons from methane through pentane



Eugene Huguenin

Eugene Huguenin, of the Los Angeles offices of the California Division of Oil & Gas, graduated from the University of California School of Mines in 1909. From 1909 to 1912 he engaged in mining work in Sonora, Mexico. From 1912 to 1913 he was field geologist for Caribbean Petroleum Co., and from 1915 to 1917 he was field assistant for the California State Mining Bureau. In 1918 and 1919 he was district engineer for the Division in Northern California. From 1920 to 1923 he was inspector and petroleum engineer for the Division, and in 1923 and 1924 he was deputy supervisor at Santa Paula and Taft. He has been in the Los Angeles offices since 1925. Mr. Huguenin is married and has four children. His hobbies are hiking and swimming.

in the liquid phases of the various hydrocarbon systems that have been studied experimentally are presented in tabular form, together with similar information correlation of these partial volumes has for two complex liquids. A tentative been prepared to permit the prediction of the specific volume of naturally-occurring hydocarbon liquids in the ranges of pressure and temperature that commonly are encountered in production practice. This correlation represents a preliminary attack upon one part of the major problem of the prediction of the volumes of hydrocarbon mixtures under widely-varying conditions.

Revivification Characteristics of Bauxite Used in Percolation Filtration. R. H. Hubbell, Jr., and R. P. Ferguson. Abstract: Investigation of the effect of continued revivification on the adsorptive qualities of bauxite reveals that the revivification characteristics of this material vary with the type and source of stock handled and the method of filtration substantially as follows: a. In the solution percolation of residual stocks

Stephen H. Rook

Stephen H. Rook, of the Los Angeles offices of the California Division of Oil & Gas, was born in Quincy, Ill., and attended high school in Julesburg, Colo. He is a graduate of U.C.L.A., and continued post-graduate work at Columbia University in geology and palentology. In 1928 he joined Atlantic Oil Refining Co. at Shreveport, La. In the following year he went to Gulf Refining Co. in Louisiana. In 1932 he became associated with the United Gas Public Service Corp., and in 1937 he entered the Division of Oil & Gas where he is a petroleum engineer and inspector. His favorite hobby is golf.

bauxite retains throughout its life an efficiency of approximately 85 per cent of its initial value. b. In the straight percolation of bright stocks, average values average in the vicinity of 80 per cent of new material are obtained. c. The bauxite filtration of distillate stocks requires the maintenance of low temperatures of revivification. Under optimum conditions values of 55 to 60 per cent of No. 1 bauxite are maintained in the percolation of Pennsylvania neutrals. d. Bauxite manifests a great advantage over other adsorbents in the percolation of petrolatums and related stocks, owing to the high yields and the tasteless and odorless character of the products. e. Fresh bauxite exerts a "solvent" action greater than that of fullers earth, a characteristic which diminishes with repeated re-burning. With fresh material, improved carbon and increased API gravity are obtainable, but only at some sacrifice in viscosity.

Interior Secretary Ickes, at a recent press conference indicated that any attempt to broaden the Connally "hot oil" law to provide "closer cooperation" between state and federal governments would have his blessing.

Richfield to Build Huge Treating Plant

Richfield Oil Corp., shortly will have under construction a 500,000 dollar cold acid treating plant as an addition to its Watson, California, refinery, where the company is now completing the erection of two new combination crude topping and cracking units at a total cost in excess of $5,000,000.

The new plant will be designed by the Stratford Engineering Co., of Kansas City, Missouri. Bechtel-McCone-Parsons of Los Angeles are to be the builders.

This plant is of the settler type having three stages to operate at 30, 30 and 20 degrees fahrenheit, respectively. Stock to be treated is debutanized cracked distillate. Capacity is estimated at an average of 10,000 barrels daily. With varying amounts of acid and conditions of treatment, any desired reduction of sulphur within reasonable limits can be secured with the new equipment.

All ammonia compressors, pumps and contactors will be electrically driven. Electrical starting equipment is to be housed in a well ventilated, reinforced, concrete room in the treating building to reduce hazards from electrical equipment to a practical minimum. Treating equipment and refrigeration equipment will be housed separately.

All pumps and contactor motors will be explosion-proof while ammonia compression motors will be of the synchronous type having enclosed forced ventilated collector rings. Elaborate instrumentation is planned to assure continuity of operation and uniformity of product.

Particular attention has been given to possible hazards of earthquake and fire. Steel valves are being used throughout on oil piping. A steam smothering system will be installed in all buildings and foamite, from the refinery's present fire protection system, will be distributed to strategic points to guard against fire.

Regulations designed to protect investors from "unscrupulous oil speculators" have been issued by the U. S. Department of the Interior.

State Drilling Report

Field	Company	Well	No.	Sec.	Twp.	Range
		NEW WELLS				
Torrance	Bolling Oil Co.	Autry	1	23	4S	14W
	C. H. Lebow	Lebow Fee	1	23	4S	14W
	D & B Oil Co.	D & B	3	25	4S	14W
	Kovell Oil Co.	Deep Hole	1	23	4S	14W
Rosecrans	Isco Petroleum Corp.	Rosecrans-Abel	2	19	3S	13W
Aliso Canyon	Union Oil Co.	Santa Susana Orcutt	27–1	27	3N	16W
Huntington Beach	Southwest Exploration Co.	State	14	10	6S	11W
Mesa	Trans-Oceanic Oil Corp.	Mdivani	2	28	4N	27W
Fruitvale	Western Gulf Oil Co.	41-KCL-B		22	29S	27E
Kettleman North	Kettleman North Dome Assoc.		47	16	22S	18E
Wilmington	Union Pacific Railroad Co.	Union Pacific E-14, E-15, 101 & 102		34	4S	13W
	Royalty Service Corp., Ltd.	Nelson	A-8	4	5S	13W
Montebello	Standard Oil Co.	Harvey	4	2	2S	12W
	Herley-Kelley Oil Operations	Burke Comm.	2	2	2S	12W
	Stanley Oil Co.	Montebello	1	2	2S	12W
	The St. Helens Pet. Co., Ltd.	Mulholland	4	2	2S	12W
	The St. Helens Pet. Co., Ltd.	Monterey	30	2	2S	12W
	Standard Oil Co.	Braun	4 & 5	2	2S	12W
	Union Oil Co.	Paul J. Howard	4	2	2S	12W
	Union Oil Co.	La Merced	30	1	2S	12W
	Union Oil Co.	Wilcox	3	2	2S	12W
	Gus Pongratz Oil Co.	Newmark	1	3	2S	12W
Ventura	Shell Oil Co.	Edison	33	28	3N	23W
Midway	Westco Petroleum Co.	Westco	1	34	30S	22E
Kern County	Frank E. Abbott		1	13	27S	18E
	Frank E. Abbott		1	7	27S	19E
	Frank E. Abbott		1	11	27S	18E
	Shell Oil Co.	S. P. L.	1	7	29S	30E
Wasco	Continental Oil Co.	KCL	A-4-8	8	27S	24E
	Standard Oil Co.	Mushrush	2	7	27S	24E
	Standard Oil Co.	K.C. 8-B	2	17	27S	24E
McKittrick	Standard Oil Co.		31	7	30S	22E
Edison	Wood-Callahan	21 Community	4	21	30S	29E
Kern River	A. H. Santoire	A. H. S.	1	19	28S	28E
Imperial County	Max Cawthon	Max Cawthon	4	14	11S	13E
		DEEPEN OR REDRILL				
Torrance	West Basin Oil Co.	Eyster	1	23	4S	14W
	MacDonald and Burns	Moore	3	23	4S	14W
	Pacific Western Oil Corp.		11	15	4S	14W
	Logan Petroleum, Inc.		3	23	4S	14W
	Westside Oil Co.		3	23	4S	14W
	W. A. Kirk		5	23	4S	14W
Montebello	Standard Oil Co.	Standard-McDonald	1	2	2S	12W
	West Montebello Oil Co.	Montebello	2	2	2S	12W
	Universal Cons. Oil Co.	B. C.	1	5	2S	11W
Long Beach	Hilldon Oil Co.	Domingues	1	14	4S	13W
	Delaney Petroleum Corp.	Aberdeen	1	29	4S	12W
	Delaney Petroleum Corp.	W. A.	11	19	4S	12W
	West American Oil Co.	W. A.	10	19	4S	12W
	Jahns Oil Co.	Bowles	1	24	4S	13W
	R. R. Bush Oil Co.	Barnes	3	19	4S	12W
	George F. Getty, Inc. and J. Paul Getty	L. B.	21	19	4S	12W
	Axis Petroleum Co.	Windermere	2	19	4S	12W
	Charles Black		1	29	4S	12W
Playa Del Rey	So. Calif. Petroleum Corp.	Del Rey	2	34	2S	15W
Huntington Beach	Delaney Petroleum Corp.	Ensign	2	2	6S	11W
	Standard Oil Co.	P. E.	20	10	6S	11W
Coyote Hills	Standard Oil Co.	Emery	40	12	3S	11W
Elwood	Barnsdall Oil Co.	Doty	6	22	4N	29W
	Barnsdall Oil Co.		94–1	22	N4	29W
Midway	Standard Oil Co.		2	1	32S	23E
	Tide Water Assoc. Oil Co.		23	22	32S	23E
	Murvale Oil Co.		6	20	32S	24E
Mountain View	Shell Oil Co.	Bahrenburg	2	32	30S	29E
	Wood-Callahan Oil Co., Ltd.	National Oil	1	30	30S	29E
Fruitvale	G. Harold Janeway	Hasson	2	23	29S	27E
Richfield	Boswell Petroleum Co.	Breen	2	28	3S	9W
Rincon	C. C. M. O. Co.	Hobson B-15 & B-17		17	3N	24W
		ABANDON				
Long Beach	Apex Petroleum Corp., Ltd.	Locke	35	24	4N	13W
Newhall	Continental Oil Co.	Newhall	1	20	4N	17W
Torrance	Blue Bell Petroleum Co.		1	23	4S	14W
El Segundo	Standard Oil Co.	Refinery	1 & 5	13	3S	15W
	George F. Getty, Inc.	E. S.	1-A	7	3S	14W
	El Segundo Oil Corp.	Grauman-Wallace	1	12	3S	15W
Los Angeles County	Richfield Oil Corp.	Domingues Extens.	1	2	4S	13W
Torrance	Imperial Gypsum & Oil Corp.	Torrance	18	14	4S	14W
Wilmington	Sovereign Oil Corp.	Sovereign Advance Truck	1	28	4S	13W
Kern County	The Texas Co.	Mountford	1	19	27S	19E
Fruitvale	The Texas Co.	Camp-West-Lowe	1	7	29S	27E
Coalinga	The Texas Co.		18	12	20S	15E
Kings County	Carl W. Weller	Baby King	2	11	23S	16E
Rosecrans	Western Gulf Oil Co.	Bagg	1	17	3S	13W
Elwood	Barnsdall Oil Co.	Doty	6	22	4N	29W
Santa Barbara Co.	Wm. Carter, Jr.	Cuyama	1	28	11N	28W
Midway	Richfield Oil Corp.	Main Camp	1	24	31S	22E
Kern County	Bell and Loffland, Inc.		33-4	33	11N	19W
Coalinga	Tide Water Associated Oil Co.	Fleishacker	1	1	19S	15E
Kettleman North	Standard Oil Co.		46	13	21S	16E

Summary	Week Ending Dec. 24	Previous Week	To Date This Year	To Date Last Year
Total New Wells	13	26	1147	1631
Total Deepened or Redrilled	17	16	789	703
Total Abandoned	11	10	526	571

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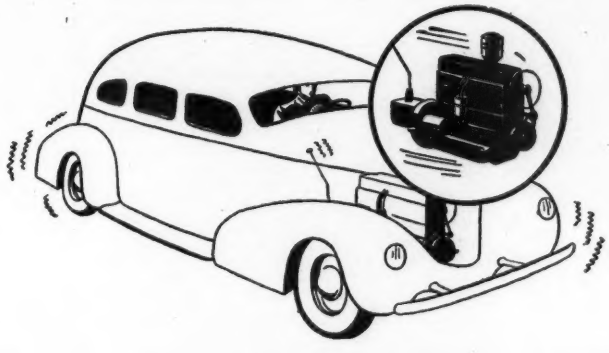

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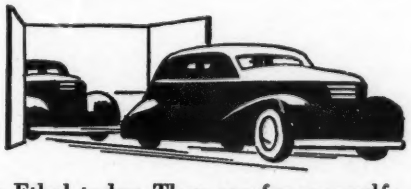

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PRODUCTION :-: DEVELOPMENT

(Figures of Production and Stocks are in barrels of 42 Gals.)

Group No. 1	Total Production November	—DAILY AVERAGE— Nov., 1938	Oct., 1938	Nov., 1937
Belridge—North	374,938	12,498	12,698	16,673
Belridge—South	34,048	1,135	1,097	1,492
Canal	106,363	3,545	3,355	570
Canfield Ranch	1,731	58	94	.....
Coalinga	243,723	8,124	8,921	15,688
Coles Levee	4,795	160	.....	.....
Edison	77,880	2,596	2,669	3,948
Elk Hills	306,707	10,224	10,290	11,001
Fruitvale	233,508	7,784	7,746	8,024
Greeley	72,578	2,419	2,836*	2,818
Kern River	338,418	11,280	11,499	14,947
Kettleman Middle Dome	1,141	38	36	96
Kettleman North Dome	1,837,901	61,263	62,183	81,689
Lost Hills	97,647	3,255	3,355	4,214
McKittrick	106,107	3,537	3,142	4,506
Midway-Sunset	1,665,222	55,507	56,382	74,115
Mountain View	278,950	9,298	9,223	16,022
Mount Poso	424,336	14,145	14,931	21,010
Rio Bravo	291,128	9,704	7,598	1,617
Round Mountain	384,484	12,816	13,031	16,191
Ten Section	263,895	8,797	8,531	3,411
Tupman	1,668	56	.....	.....
Wasco	14,110	470	377	.....
Wheeler Ridge	9,355	312	306	313
Group No. 2				
Capitan	86,388	2,880	2,977	3,039
Elwood	150,062	5,002	5,126	7,931
Rincon	124,227	4,141	3,423	3,756
San Miguelito	77,550	2,585	2,818	3,472
Santa Barbara	11,843	394	385	557
Santa Maria	577,585	19,253	18,400	13,797
Summerland	963	32	46	34
Ventura Avenue	1,018,298	33,943	34,332	36,433
Ventura-Newhall	166,309	5,544	5,499	5,181
Watsonville	900	30	30	60
Group No. 3				
Brea-Olinda	169,799	5,660	5,705	6,148
Coyote—East	91,905	3,064	3,256	4,345
Coyote—West	239,166	7,972	7,999	9,541
Dominguez	820,025	27,334	26,061	29,529
El Segundo	168,723	5,624	5,882	19,105
Huntington Beach	933,060	31,102	31,600	36,018
Inglewood	401,997	13,400	13,499	16,104
Lawndale	2,070	69	70	89
Long Beach	1,607,989	53,600	54,548	57,866
Los Angeles-Salt Lake	15,445	515	573	572
Montebello	467,147	15,572	14,116	7,443
Playa Del Rey	169,676	5,656	5,934	7,736
Potrero	19,024	634	600	418
Richfield	261,908	8,730	8,729	9,424
Rosecrans	471,076	15,703	14,016	4,553
Santa Fe Springs	918,475	30,616	30,283	41,575
Seal Beach	241,264	8,042	8,051	9,331
Torrance	579,094	19,303	19,990	7,732
Whittier	28,055	935	912	908
Wilmington	2,893,332	96,444	93,652	60,947
Total	19,883,988	662,800	658,812	701,988
October	20,423,178	658,812		
Increase (†Decrease)	539,190†	3,988		

*Corrected figure. Due to typographical error, this was overstated by 100 barrels in last month's Summary.

SUMMARY OF CALIFORNIA OILFIELD OPERATIONS FOR NOVEMBER, 1938—STOCKS HELD IN PACIFIC COAST TERRITORY BY CALIFORNIA OIL COMPANIES

	Nov. 30, 1938	Oct. 31, 1938	November Changes	Dec. 31, 1937 Reclassified
1. Gasoline-Bearing Crude	35,965,731	34,766,423	+1,199,308	29,417,842
2. Non-Gasoline-Bearing Crude	16,747,432	17,144,854	− 397,422	14,384,000
3. Unblended Nat. Gas	2,974,191	3,038,914	− 64,723	2,001,204
4. Gasoline (not including distributing and service stations)	12,985,975	12,506,153	+ 479,822	13,520,678
5. Naphtha Distillates	1,435,281[1]	1,383,671[1]	+ 51,610	1,464,577[1]
6. Gas Oil and Diesel Oil	10,685,631	10,878,753	− 193,122	8,648,990
7. Fuel Oil Residuum	70,851,285	70,190,421	+ 660,864	54,145,388
8. All Other Stocks	5,949,173	5,413,051	+ 536,122	4,457,568
TOTAL	157,594,699	155,322,240	+2,272,459	128,040,247
[1]Estimated amount of unfinished gasoline contained in item 5	1,199,560	1,162,298		1,248,291

	New Rigs Up	Producers Active Drilling	Producers Completed	Daily Initial Output	Active Producing	ABANDONED WELLS Drillers	ABANDONED WELLS Producers
Group No. 1							
Belridge—North	2	5	2	4,748	60	....	....
Belridge—South	1	....	1	30	87	....	....
Canal	2	3	1	2,955	14	....	....
Canfield Ranch	..	....	....	....	1	....	....
Coalinga	5	6	1	3,038	795	....	2
Coles Levee	..	....	1	826	1	....	....
Edison	1	1	1	200	88	....	1
Elk Hills	1	....	....	....	166	....	....
Fruitvale	..	1	....	....	173	....	....
Greeley	1	5	....	....	16	1	....
Kern River	..	1	2	27	1,357	1	....
Kettleman Middle Dome	..	....	....	....	3	....	....
Kettleman North Dome	1	9	2	8,942	209	1	....
Lost Hills	..	1	....	....	235	1	....
McKittrick	1	....	....	....	182	....	....
Midway-Sunset	1	4	1	12	2,463	...1	....
Mountain View	..	....	1	294	185	....	....
Mount Poso	2	3	....	....	267	1	....
Rio Bravo	..	2	5	20,611	24	....	....
Round Mountain	3	1	2	460	207	....	....
Ten Section	..	1	....	....	33	....	....
Tupman	..	....	1	3,752	1	....	....
Wasco	2	....	1	6,528	3	2	....
Wheeler Ridge	..	1	....	....	27	....	....
Group No. 2							
Capitan	..	....	....	....	52	....	....
Elwood	..	....	....	....	80	....	....
Rincon	..	1	1	374	51	....	....
San Miguelito	..	2	....	....	18	....	....
Santa Barbara	1	....	....	....	34	....	....
Santa Maria	..	1	1	700	296	1	....
Summerland	1	....	....	....	18	....	....
Ventura Avenue	2	10	2	121	246	....	....
Ventura-Newhall	5	10	1	117	557	....	....
Watsonville	..	....	....	....	7	....	....
Group No. 3							
Brea-Olinda	..	2	....	....	348	....	....
Coyote—East	..	2	....	....	85	....	....
Coyote—West	..	....	....	....	55	....	....
Dominguez	2	1	2	310	205	....	....
El Segundo	..	....	....	....	55	....	2
Huntington Beach	4	3	2	123	549	1	1
Inglewood	..	....	....	....	209	....	....
Lawndale	..	....	....	....	6	....	....
Long Beach	..	4	1	400	1,258	....	3
Los Angeles	..	....	....	....	112	....	....
Montebello	7	3	4	3,044	212	....	....
Playa Del Rey	..	....	....	....	186	....	2
Potrero	..	....	1	600	13	....	....
Richfield	1	2	2	120	293	1	....
Rosecrans	4	11	3	3,090	111	....	1
Santa Fe Springs	..	1	....	....	584	....	....
Seal Beach	..	....	....	....	113	....	....
Torrance	7	16	12	2,501	654	....	1
Whittier	..	....	....	....	138	....	....
Wilmington	8	8	10	5,611	585	1	1
Miscellaneous Drilling	7	38	....	....	....	12	....
Group No. 4—Gas Fields							
Buena Vista Lake	..	....	....	....	5	....	....
Buttonwillow	..	1	....	....	28	....	....
Chowchilla	..	....	....	....	....	....	....
Delano	..	....	....	....	....	....	....
Dudley Ridge	..	....	....	....	....	....	....
Goleta	..	....	....	....	....	....	....
McDonald Island	..	....	....	....	4	....	....
Rio Vista	..	....	1	Gas	15	....	....
Semi-Tropic	..	....	....	....	1	....	....
Tracy	..	....	....	....	5	....	....
November	72	160	65	69,534	13,785	23	16
October	83	162	88	67,600	13,708	15	19
Decrease (*Increase)	11	2	23	1,934*	77*	8*	3

M. B. Skinner Catalog

M. B. Skinner Co., South Bend, Ind., have just issued their Catalog No. 38 A describing and listing prices of their pipe repair clamps and saddles, valve and bibb reseaters. Interesting tables show the cost of various types of leaks, and the illustrations support the company slogan of "A Clamp For Every Leak".

A. M. Byers Co. Catalog

A. M. Byers Co. have just issued their 1939 general catalog describing their welded wrought iron tubular products, wrought iron flat rolled products, and welded steel tubular products. The catalog also discusses at length the properties of "genuine wrought iron" and steel. A section deals with the method of specifying genuine wrought iron and steel products.

Yowell Christmas Bonus

In appreciation of their fine cooperation during the past year, a Christmas bonus of a half month's salary was presented to each employee of the Yowell Service Co. just prior to the holiday season. Those receiving the bonus included the entire personnel of the head office at Santa Fe Springs and the branch service organizations located at Avenal and Bakersfield.

Axelson Paraffin Scraper

The Axelson Guide Type Paraffin Scraper Coupling has won widespread praise of operators for use in wells troubled with paraffin deposits in the tubing. The design of the coupling permits it to be hooked on the rod string without interfering with normal operations in any way. Spiral flutes form a continuous bearing surface and permits sufficient fluid passage. Paraffin is expelled by the turbulent action set up by the spiral flutes. A scraper coupling installed at every fifth joint on the rod string is recommended. Manufactured by the Axelson Manufacturing Co., Los Angeles.

Fluor Gas Cleaners

Fluor Gas Cleaners is the title of a new 8-page Bulletin, in color, published by The Fluor Corp., Ltd., Los Angeles.

The Bulletin describes the improved new type gas cleaners designed and built by the company. Considerable space is devoted to technical descriptions and illustrations of two Fluor Gas Cleaners, the liquid remover type and the dirt remover type, and the valuable benefits to be obtained by their use.

Bulletins may be obtained free by writing The Fluor Corp., Ltd., P. O. Box 128, Arcade Station, Los Angeles.

Brown Instrument Folder

The Brown Instrument Co. has just issued a folder illustrating the complete line of indicating, recording and controlling instruments for measuring and controlling temperatures, pressures, flows, liquid levels and humidity. Typical Brown installations are shown where instrument investments have been repaid many times over in "Reclaimed Losses". The folder will be sent to those applying to Brown Instrument Co., Wayne & Roberts avenues, Philadelphia, for Folder No. G-37.

Romantic story of 25,000 to 100,000 years ago in Southern California is revealed by portion of Mammoth tusk, held by S. J. Dickey (right) General Petroleum's vice president in charge of manufacturing; and Fred Isaacs, superintendent of General's refineries. The tusk is but one of many specimens uncovered on the refinery property while digging an 11-acre reservoir for the storage of oil.

F. J. (Ole) Olson Made Allsteel Export Manager

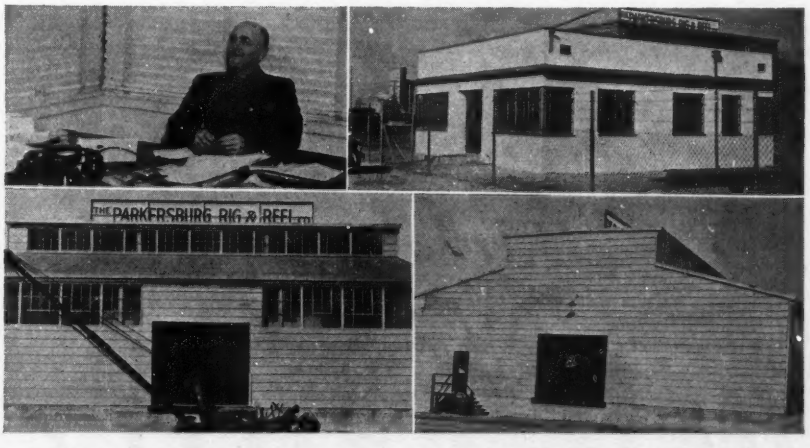
An announcement has just been made by H. W. Cardwell, President of the Allsteel Products Manufacturing Co. of Wichita, Kansas, of the appointment of F. J. (Ole) Olson as Export Manager of

F. J. (Ole) Olson

their company, with headquarters at 570 Lexington Avenue, New York City.

The many friends of "Ole" Olson in the California oil industry will miss him, but will all be very happy to learn of this advancement with his company, and will wish for him every success in this new and very responsible position.

No announcement has as yet been made as to the appointment of a new California representative, but Mr. Cardwell states that Mr. Harvey, Sales Manager of the company, will be in California sometime during the month of January, and while here will appoint a Pacific Coast representative, so that California sales and services will be handled as usual from their headquarters in the Petroleum Securities Building, Los Angeles.



L. R. McCollom, district manager for Parkersburg Rig and Reel Co., may be seen here enjoying the company's new quarters at 4001 East Washington Blvd.

LAUGH THIS OFF

From what we have learned, the oil industry may expect a tough year in 1939, unless we are all prepared to put our shoulders to the bull wheel and use the old crown block.

According to the report of a local newspaper, one recently organized concern is already levying heavy assessments on its "sockholders," and we doubt if that was a misprint.

And what was thought last week to be one of the biggest Sandy Anna's ever experienced in Los Angeles County was merely **Elmer Rogers** blasting his way out of a bunker at Brentwood.

Elmer, incidentally, took home a cup from a local divot lofting contest recently, and his friends are still wondering whether he won it or excavated it.

By the way, an expert in such matters declares that beating carpets exercises the same muscles as golf. Maybe so, but for goodness sakes, doesn't the guy know when to keep a secret?

And knowing how **"Stew" Watson** performs on the links, nobody was surprised when at his birthday party he sliced the cake.

We daren't name the association that was holding the election, but it was **Joe Scanlon** who said, "The thing I like most about the two candidates is that only one of them can get in."

Joe, you will remember as the author of that old story about the Irish oil man who was arrested for assault and battery. They had just completed the panel, and he was asked if he would care to challenge any member of the jury. "Yes, sir," he replied, "I think I can lick the short one on the end."

Whereupon **Andy Hazard** reports the sad case of the rousty whose wife foolishly gave him some dark cake in his lunch box. Being totally unable to distinguish it, the poor fellow bit off his right thumb.

Which recalls the little oil field cafe that advertised: "Protect yourself from the wet weather. Try our goulashes."

And **Marion Dice** describes a scientist as a guy who is always trying to find life on some distant planet, but never goes in for any of it here.

A certain petroleum engineer, returning from a local A.P.I. meeting was sneaking quietly into his home when he barked his shin on the chandelier. "Is that you, John " inquired the little lady. "Yeah, it's me," says John. "What time is it?" was the next question, and John grunted "Quarter of twelve." "Why, I just heard the clock strike three," was the discomforting retort. "Well," snorted the delegate indignantly, "Three's a quarter of twelve, isn't it?"

Max Anfenger, the safety expert, now pops up with a school boy definition that is a classic in first aid understanding. Says the precocious youngster in reply to question number one, "To revive a fainting person, you lay them on their backs, take out their false teeth, and wait till their conscience returns."

By the way, do you remember when it was necessary to loosen a woman's clothing if she fainted?

Howard Pyle and his cohorts are practicing daily for the national ping pong championships, and to inspire the boys to further effort, **Gene Hardison** submits the following beautiful lines:

Though aced, disgraced, and double crossed
By each elusive little ball
'Tis better to have pinged and lost
Than never to have ponged at all.

And now that the Christmas tree has been stowed away in moth balls for another year, and the novelty of wearing new arm bands and garters is beginning to pall, may we remind our readers that it is time to begin resolving again.

Last year a pumper of our acquaintance made a firm resolve to stay on the water wagon, but before the end of January he fell off and broke his promise.

Which ends another remarkably instructive seance. Remember, although it is better to give than to lend, the ultimate cost is precisely the same.

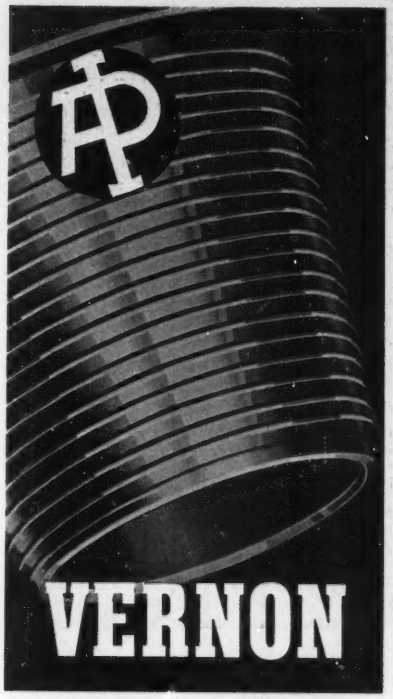
BAKER GIVES YOU EASY DRILLABILITY

ONLY COMPLETELY DRILLABLE MATERIALS ARE USED IN THE INTERNAL CONSTRUCTION OF BAKER FLOATING UNITS.

State Drilling Report

Field	Company	Well	No.	Sec.	Twp.	Range
	NEW WELLS					
Montebello	McVicar-Rood	Manz	3	2	2S	12W
	Sea Cliff Pet. Corp.	Sea Cliff	1	3	2S	12W
	The Texas Co.	Mulholland	5	2	2S	12W
Torrance	General Petroleum Corp.	Poggi	13	30	4S	13W
	Sunset Oil Co.	Security	T-2	25	4S	14W
	The Texas Co.	Oakley	3	30	4S	13W
	Whittier-Santa Fe Spgs. Oil Syn. No. 1	Torrance	1	23	4S	14W
Ventura	Alliance Petroleum Corp.	Hisey	3	21	3N	23W
Orange County	The Texas Co.		A-13-1	8	4S	10W
Rosecrans	Union Oil Co.	Rosecrans	30	19	3S	13W
Wilmington	Union Pacific Railroad Co.	Union Pacific	E-12	34	4S	13W
	Union Pacific Railroad Co.	Union Pacific	E-13	34	4S	13W
Potrero	Basin Oil Co.	Potrero	3	34	2S	14W
Long Beach	George G. Parry	Parry	1	29	4S	12W
Ventura County	G. M. Levesque	Robertson	1	17	2N	18W
Rincon	Continental Oil Co.	Grubb	10	24	3N	24W
McKittrick	The Hall-Baker Co.	Williams	1	2	30S	21E
Belridge	Belridge Oil Co.		2-28	28	27S	20E
	Richfield Oil Corp.	Belridge	3	22	27S	20E
Kern County	The Texas Co.	Mountford	1	19	27S	19E
	Hillview Oil Co.	El Tejon	1-A	11	30S	30E
	Jules E. Rufener	Julianne	1	2	29S	29E
	F. M. Pottenger	Girard	1	35	25S	28E
	The Ohio Oil Co.	KCL	F-2	10	31S	25E
Mt. Poso	Ring Oil Co., Ltd.	Shapiro	5	32	26S	28E
Round Mountain	Eastmont Oil Co.	Olcese	9-28	9	28S	29E
	Shell Oil Co.	Freeman	21	20	28S	29E
Rio Bravo	General Petroleum Corp.	Van Ness	3	2	29S	25E
Canal	Shell Oil Co.	Canal A	34-14	14	30S	25E
Coalinga	Robert S. Lytle, Operator		71	18	20S	16E
	Robert S. Lytle, Operator		37	7	20S	16E
	Foreign Oil Co.	Pacific States Annex	6	6	21S	15E
	General Petroleum Corp.	Esperanza	101	6	20S	15E
Midway	Standard Oil Co.		201	13	32S	24E
Poso Creek	Frank M. Gilstrap	Carter	1	7	27S	27E
Ten Section	Shell Oil Co.	KCL-B	81-29	29	30S	26E
Kern River	Alfred Fuhrman		11-A	28	28S	28E
Bardsdale	The Texas Co.	Shields	136	4	3N	19W
	El Rancho Oil Co.	Elkins	2	9	3N	19W
Kern River	Helm & Smith	Helm & Smith	11-A	34	28S	28E
Tulare County	V. F. Arnold	Yellow King	1	9	23S	28E
	DEEPEN OR REDRILL					
Wilmington	Sunray Oil Co.		15-8-1	32	4S	13W
Potrero	Basin Oil Co.	Potrero	2	24	2S	14W
Santa Fe Springs	General Petroleum Corp.	Santa Fe	145-D	5	3S	11W
Montebello	Standard Oil Co.	Braun	2	2	2S	12W
Torrance	Lomita Drilling Co.	Hogan	1	22	4S	14W
	Packard Petroleum Corp.	Lomita	5	22	4S	14W
	Thelma Russell	Clark	2	23	4S	14W
	Hart Petroleum Co.	Red Shield	1	23	4S	14W
Long Beach	Apex Petroleum Corp.	Brayton	1	30	4S	12W
	The Hancock Oil Co.	Signal	24	19	4S	12W
	South Basin Oil Co.		30	24	4S	13W
	General Petroleum Corp.	Black & Drake	3	19	4S	12W
Long Beach	F. L. Brennan & J. A. Crane	Gordon-Noll	1	24	4S	13W
Ventura	Tide Water Assoc. Oil Co.	Lloyd	135	27	3S	23W
Midway	Honolulu Oil Corp.		9 & 72	8	32S	24E
	Honolulu Oil Corp.		68	2	32S	24E
	North American Oil Cons.		26	30	31S	24E
	Union Oil Co.	Williams	5	22	32S	23E
Rio Bravo	The Superior Oil Co.	Ruhl	1	1	29S	25E
Mt. Poso	Vanguard Oil Co.	Baker	11	33	27S	28E
	Vanguard Oil Co.	Baker	15	33	27S	28E
Kern River	Rubenstein, Rynne & Duehr	Lillian Kelly	1	20	28S	27E
Kettleman North	Standard Oil Co.		2	33	21S	17E
	Standard Oil Co.		4	29	21S	17E
	Standard Oil Co.		27	19	21S	17E
	Standard Oil Co.		34 & 43	29	21S	17E
Coyote Hills	Standard Oil Co.	Murphy-Coyote	103	18	3S	10W
San Luis Obispo Co.	Calif. Pet. Prod. Co.		1	19	10N	24W
	ABANDON					
Torrance	The Texas Co.	Craven Comm.	2	9	4S	14W
	The Texas Co.	Gish	2	8	4S	14W
	Colma Oil Co.	Colma	1	10	4S	14W
Long Beach	P. G. Cumming	Shaver	8	20	4S	12W
	J. A. Leidecker		1	24	4S	13W
	The Texas Co.	Walker	1-A	19	4S	12W
San Bernardino Co.	Equitable Pet. Exploration Co.	Equitable	1	11	10N	5W
Wilmington	Baker Oil Co.	Baker	1	33	4S	13W
Los Angeles County	Eugene C. McClaran		1	27	4S	14W
	C. A. Julian and D. W. Criswell	Koch Comm.	1	5	2S	9W
	Hogan Petroleum Co.	Burkhard	2	6	5S	13W
El Segundo	Standard Oil Co.	Refinery	4	13	3S	15W
Santa Fe Springs	The Texas Co.	Patterson B	7	6	3S	11W
Buttonwillow Gas	Seaboard Oil Co.	Kern	7	5	28S	23E
Kern River	Butler-Richardson Trust		1	19	28S	28E
Kern County	F. M. Pottenger	Girard	1	35	25S	28E
	Shell Oil Co.	KCL-A	58-8	8	27S	26E
Mountain View	Section Six Oil Co.	Johnstone	1	6	31S	29E
Huntington Beach	Armor Petroleum Co.	Armor	1 & 2	10	6S	11W
Playa Del Rey	Southwest Oil & Development Corp.		9	28	2S	15W
Huntington Beach	Tide Water Assoc. Oil Co.	Pacific Electric	1	10	6S	11W
Riverside County	Spindle Top Oil Assoc.		1	25	7S	10E
Lompoc	J. E. O'Donnell	Helen	1	8	7N	33W
Sunset	General Petroleum Corp.	Moco 35	110	35	12N	24W
Wasco	Continental Oil Co.	KCL	A-3-8	8	27S	24E
Mt. Poso	Western Exploration Co.	Hyde	1	32	26S	28E
Poso Creek	E. S. Brooks	Smith	1	34	27S	27E
Round Mountain	Richfield Oil Corp.	Olcese	2	17	28S	29E
Kern County	Continental Oil Co.	KCL	E-1	17	30S	26E
Kettleman North	Seaboard Oil Co.		36	30	21S	17E
	Standard Oil Co.		21	13	22S	17E
Coalinga	The Texas Co.		1	12	20S	15E

Summary	Week Ending Dec. 10	Previous Week	To Date This Year	To Date Last Year
Total New Wells	22	19	1108	1548
Total Deepened or Redrilled	14	16	756	679
Total Abandoned	14	19	505	541



TOOL JOINTS

provide greatest endurance and satisfaction on the job!

The threads on VERNON A. P. I. Tool Joints are *absolutely true* because they are cut *after* the Joints are hardened. This prevents warping out-of-round and assures longer service. The use of finest steel and the application of scientific heat treatment provide uniformity, proper hardness and super strength for the most satisfactory results in the field.

Available in Full Hole, Standard and Pittsburgh Special Types.

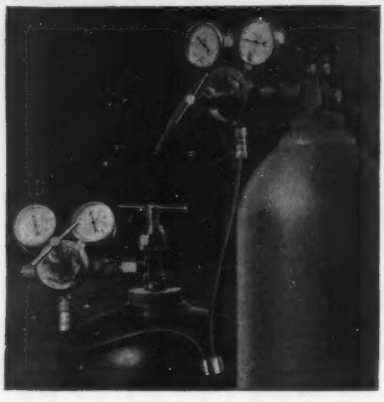
NO FINER TOOL JOINTS CAN BE MADE!

Take the guess work out of pipe make-up by having us machine-screw Tool Joints onto your Drill Pipe. When VERNON makes up your string, you are sure to get maximum service. You are invited to visit our plant and see how!

VERNON TOOL CO., LTD.
2740 EAST 37th STREET, LOS ANGELES

Twinweld Welding Hose Patents Granted Hewitt

Hewitt Rubber Corp., Buffalo, N. Y., announces the receipt of patents on its Twinweld Welding Hose. This new product, employed to convey oxygen and acetylene for welding and cutting work, consists of two lines of unusually



flexible cord-reinforced welding hose molded into a single unit that will not kink or writhe, or twist under high pressure.

Two patents were obtained by Hewitt, one for a Multiple Passage Hose and one for The Method of Making Multiple Passage Hose. The inventors are Michael Berman and William Brockner, Hewitt technical superintendent and plant superintendent respectively.

The individual passages have an inner-lining of non-blooming gas-resisting compound that is cord-reinforced. The carcass will resist pressures many times greater than those incident to welding service. Twinweld eliminates masses of sprawling hose which make for considerable inconvenience and create definite accident hazards.

Twinweld hose is available in any desired cut length or in continuous lengths as long as 500 feet that can be cut as needed. Since this product was first conceived, several million feet has been sold by the Hewitt Rubber Corp. and is in successful use in all parts of the world.

The hose is installed by splitting it with a knife along the joint end at each end a sufficient distance to form a convenient "Y" at both tank and torch ends. After the separation has been made, the ferrules are crimped to permanently prevent any further separation of the two hoses. A two-color pictorial folder describing Twinweld is available, without obligation, for the asking.

Gasoline Consumption Shows Slight Decrease

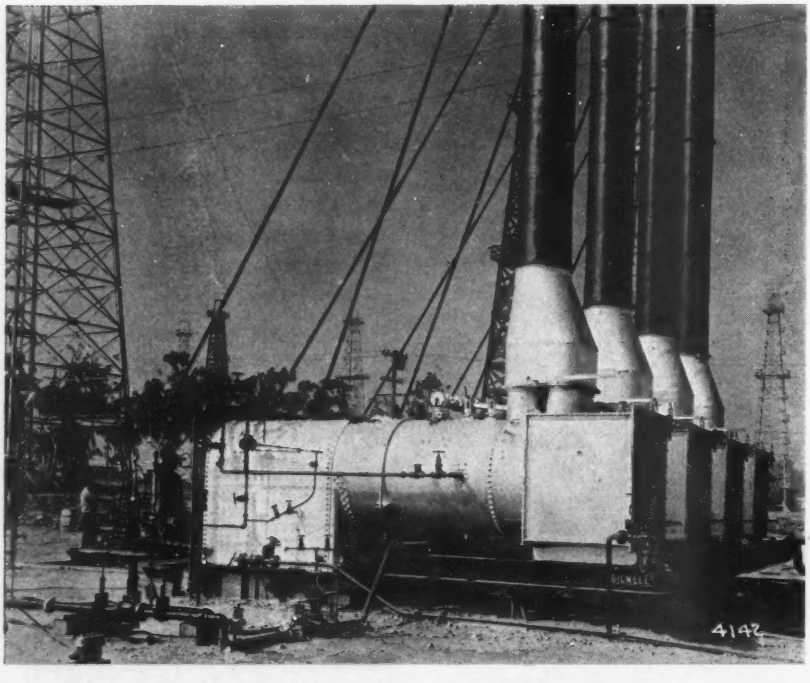
A slight loss in the consumption of gasoline for the month of November was reported by the State Board of Equalization. On the basis of distribution of 137,378,641 gallons of gasoline the motor vehicle fuel tax for the month amounted to $4,118,812.05 or 2.12 per cent below the $4,208,436.21 assessed for the same month for the previous year.

The November income from the gasoline tax also was well below that for the previous month when $4,540,166.10 was collected. November was the sixth month of the current year in which gasoline sales were below those of the same months of 1937.

Oil companies reporting sales of more than 300,000 gallons in November were listed by the Board with the explanation that resale of gasoline previously taxed and exempt sales to the Federal Government or in interstate or foreign commerce accounted for differences between total sales and taxable sales. These companies were as follows:

Name	Gallons Actually Sold	Net Taxable Gallonage
Aromalene, Inc.	676,041	657,441
Bankline Oil Co.	468,691	None
Belridge Oil Co.	1,566,731	167,830
Brown, Henry, dba. Operators Oil & Refining	739,752	739,752
Caminol Co., Ltd., The	2,906,124	2,833,789
Century Oil Co.	1,484,258	1,483,374
Chanslor-Canfield Midway Oil Co.	322,464	None
Coline Gasoline Corp.	485,903	972
Cowan Oil and Refining Co.	525,448	None
Del Rey Oil & Gas Co.	555,291	None
Eagle Oil & Refining Co., Inc.	1,473,040	1,477,653
East West Refining Co.	664,560	632,695
El Camino Refining Co.	1,119,690	1,101,137
Elm Oil Co.	526,778	526,778
El Tejon Oil & Refining Corp.	885,293	881,293
Envoy Petroleum Co.	833,172	833,172
Estado Petroleum Corp.	2,473,505	2,473,195
Exeter Refining Co.	1,442,815	1,442,789
Fletcher Oil Co., Inc.	2,268,441	None
F. R. Long, Inc.	1,723,652	None
General Petroleum Corp.	29,286,265	7,767,655
Gilmore-Dabney, Inc.	434,646	None
Gilmore Oil Co.	6,050,319	134,439
Hancock Oil Co.	4,194,233	3,662,476
Harbor Refining Co.	868,795	868,795
Honolulu Oil Corp., Ltd.	712,903	8,090
Lomita Gasoline Co.	1,688,874	None
Los Nietos Prod. & Ref.	3,036,098	861,736
Macmillan Petroleum Corp.	2,922,446	2,707,183
Maguire Oil and Ref. Corp.	452,154	451,295
McCallen Refining Co.	1,100,429	1,082,379
Mercury Petroleum Corp.	412,418	412,418
Meek, Herbert A., dba. Henry H. Cross Co. of Calif.	467,442	None
Moffett, J. O., (San Fernando Refining Co.)	370,452	370,442
Mohawk Petroleum Corp.	4,497,056	3,882,302
Norwalk Co., The	1,997,759	1,585,599
O. C. Field Gasoline Corp.	2,360,788	188,010
O. F. Collinge, Inc.	535,784	None
Olympic Refining Co.	1,308,295	748,752
Pacific States Oil & Terminals	2,268,536	2,268,441
Pacific Western Oil Corp.	438,851	901
Petroleum Corp., The	1,878,066	642,312
Petrolane, Ltd.	354,614	247,469
Richfield Oil Corp.	14,939,785	11,816,620
Rio Grande Oil, Inc.	3,480,061	None
Rothschild Oil Co.	1.373.142	1,373,142
R. R. Bush Oil Co.	1,188,937	1,077,806
Seaboard Oil Co. of Del.	1,543,554	None
Seaside Oil Co.	3,655,779	2,325,574
Shell Oil Co.	41,546,858	16,408,391
Signal Oil and Gas Co.	1,379,016	None
Signal Oil Co.	5,607,010	None
Socal Oil & Refining Co.	832,166	832,016
Standard Oil Co. of Calif.	49,013,370	20,048,950
St. Helens Petroleum Co., Ltd.	1,244,790	1,244,670
Sunset Oil Co.	2,539,343	None
Superior Oil Co.	2,101,264	90.361
Texas Co., The	8,896.012	7,501.338
Tide Water Assoc. Oil Co.	21,779,597	12,054,615
Triangle Oil & Ref. Co., Ltd.	639,327	639,327
Union Oil Co.	19,365,858	11,301,133
West Coast Refining Co.	364,947	None
Western States Gasoline Corp.	3,885,620	221,083
Wilshire Oil Co., Inc.	8,533,918	7,780,946

With domestic consumption of oil just about holding its own this year, exports will show an increase of 20 to 25 per cent.



This highly efficient central steam generating plant, "Oilwell" feedwater heater pump unit and "Oilwell" portable superheated steam generators, is furnishing power for drilling Barnsdall Oil Co. wells in the Rosecrans field.

A.P.I. Appoints New Committee Chairmen

Appointment of the 1939 Executive Committee has been announced by the Central Committee on Drilling and Production Practice of the American Petroleum Institute's Division of Production. **W. E. Gilbert, of Shell Oil Co., Los Angeles, Calif.,** is chairman; C. E. Reistle, Jr., of Humble Oil & Refining Co., Houston, Texas, is vice chairman; and C. A. Young, of the Institute staff, Dallas, Texas, is secretary.

The members of the new committee are: M. Albertson, Shell Petroleum Corp., Houston; J. C. Askam, The Ohio Oil Co., Findlay, O.; **D. L. Caldwell, Barnsdall Oil Co., Los Angeles;** M. L. Haider, Standard Oil Development Co, New York; J. T. Hayward, Barnsdall Oil Co., Tulsa, Okla.; E. F. Kindsvater, Phillips Petroleum Co., Bartlesville, Okla.; **H. N. Marsh, General Petroleum Corp. of California, Los Angeles;** C. D. Miller, Barnsdall Oil Co., Tulsa; H. H. Power, University of Texas, Austin, Texas; and B. B. Wescott, Gulf Research & Development Co., Pittsburgh, Pa .

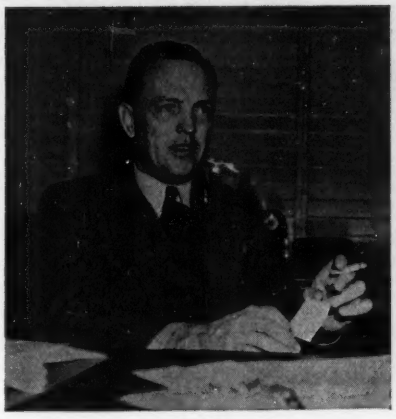
"Kennametal" Catalog

McKenna Metals Co., 110 Lloyd Ave., Latrobe, Pa., manufacturers of "Kennametal" tools and blanks for steel and metal cutting, has issued a new 24-page catalog which is now available to all plant operating and purchasing officials. Kennametal is manufactured in three grades—hard, medium and soft alloys, and designated as KH, KM and KS depending on the metals to be cut. Grade KH is the most generally applied grade where only one kind of hard carbide is used, as it machines not only steel, but non-ferrous alloys, and malleable iron as well as taking interrupted cuts on cast iron.

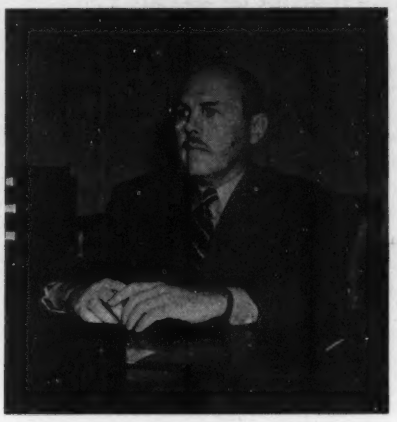
The basic ingredient of the steel-cutting grades of Kennametal, a synthetic tungsten titanium carbide composition, is the new substance corresponding to the chemical formula $WTiC_2$ which was developed by Philip M. McKenna. The main use of this compound at present is as an ingredient in the manufacture of hard carbide alloys in the form of blanks for tool tips, drawing dies, lathe centers gage parts, rings, balls, rolls and other shapes, all harder than any tool steel. Kennametal tool blanks are brazed to steel shanks with copper or bronze to make tools for turning, boring, facing, milling, keyway cutting, reaming etc., of steel articles, both annealed and heat-treated up to 500 Brinell, monel metal, malleable iron, cast iron, brass, bronze and aluminum.

Copies of this new catalog may be obtained gratis by addressing the manufacturer. Ask for Kennametal No. 2 Catalog.

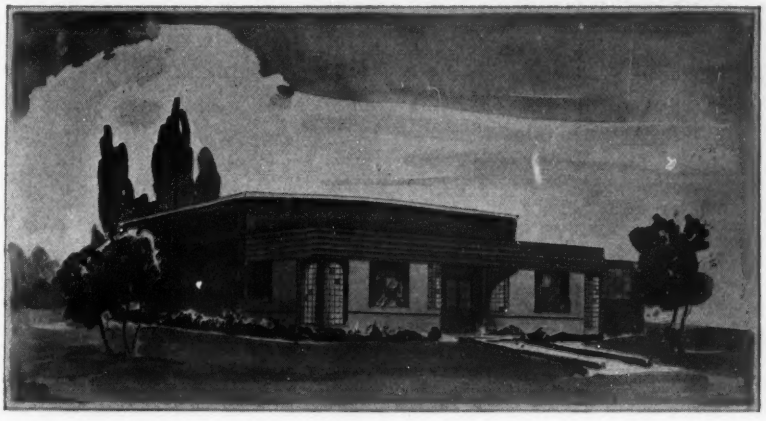
SECURITY BUILDS NEW HOUSTON PLANT



W. E. Sievers, Vice-President of Security Engineering Co.



J. P. Sievers, Vice-President and Secretary of Security.



Architect's drawing of the modern new division office, warehouse and manufacturing plant being built by Security Engineering Co., at 5525 Clinton Drive, Houston, Texas.

The Security Engineering Co. whose main office and plant is located in Whittier, Calif., announces that plans are complete and construction has been started on their modern new division office, warehouse and manufacturing plant at 5525 Clinton Drive, Houston, Texas.

The new unit is being built by the Austin Co., nationally known designers and builders, and will occupy a space 160 by 250 feet. Steel construction will be used throughout.

Offices will be of steel construction, with brick, tile and stucco finish and will be completely air conditioned. The warehouse and manufacturing plant will contain all modern equipment, and provision is being made for maximum amount of light and ventilation in both buildings. "Securaloy" pipe and accessories will be stocked and serviced at the new plant for the Oklahoma, Louisiana, Illinois and Gulf Coast areas. This new plant will also handle an important part of export shipments of Security equipment through New Orleans and Gulf Coast ports.

H. F. Sutton, division manager for Security Engineering Co., Inc., at Houston, and a member of the company's sales department for the past five years, will be placed in charge of the new plant.

L. G. Robinson is moving to Houston as assistant to Mr. Sutton in the Gulf Coast area and will make intermittent trips to Illinois fields

Hal Bentson is also working out of the Houston office in charge of engineering.

The world's deepest well, in Wasco, is producing from a Miocene formation laid down on ancient sea bottoms 20,000,000 years ago.

Develop Sub-Zero Valves To Operate at —150° F.

Development of a lubricated plug valve for extremely low temperatures is announced by Merco Nordstrom Valve Co. Recently installed in a plant for the manufacture of ethyl chloride where temperatures are as low as —150° F., this type of valve is said to be equally suitable for handling liquid air or for use in dewaxing plants and for other applications where extremely frigid temperatures are prevalent.

The principal effect which exposure to extreme cold conditions produces upon the engineering properties of steel is a

Nordstrom Sub-zero Valve

decided tendency toward brittleness as evidenced by loss of impact resistance. Hence, the industrial processes involving operation at artificially produced sub-zero temperatures require the use of steels which show a minimum degree of susceptibility to this effect.

This valve can be used at any temperature up to —150° F. where minimum impact strengths of 15 ft.-lb. Charpy are specified. There has been considerable interest in the behavior of materials, steel particularly, at the low temperatures involved. Selection of wrought steel for parts subject to low temperature is not particularly difficult, but there are a good many parts for low temperature service, valve bodies for instance, that could be made from cast steel. The difficulty has been that of obtaining a cast steel that will meet impact requirements at very low temperatures.

The Nordstrom development permits the operation of a valve at pressures up to 600 pounds per square inch at sub-zero. The steel from which the bodies are cast meets a low temperature impact specification of a minimum Charpy impact of 15 ft.-lb., using standard keyhole notch test specimens.

The analysis of one heat was:

Carbon	0.08%
Manganese	0.29
Silicon	0.12
Phosphorus	0.015
Sulphur	0.018
Nickel	4.06
Vanadium	0.16
Molybdenum	0.50

After casting, the valve bodies are subjected to a heat treatment that consists of normalizing at 1800-1850° F., oil quenching from 1500-1550° F., and drawing at approximately 1200° F. The castings are held at normalizing, quenching and drawing temperatures for one hour per inch of section.

The physical properties from this heat, developed by the above treatment are:

Tensile Strength p.s.i.	107,000
Yield Point, p.s.i.	88,000
Elongation in 2" %	22.5
Reduction of Area %	61.0
Charpy Impact ft.-lb (—150°F)	20.0

Chrome-Molybdenum steel (SAE 4140) is used for all parts, such as studs, that are made from forged or wrought steel. This particular steel was chosen because of its good impact strength at sub-zero temperatures.

The wrought steel parts are subjected to a heat treatment consisting of oil quenching from 1575° F., and drawing at 1275° F. The physical properties developed as a result of this treatment are:

Tensile Strength, p.s.i.	130,000
Yield Point, p.s.i.	105,000
Elongation in 2" %	21.0
Brinell Hardness	238
Charpy Impact ft.-lb. (—150° F. Av.)	18.3

In developing this new type of low temperature valve, Nordstrom engineers have designed the shank housing to embody an elongated casting, permitting complete insulation around the plug shank. These valves are produced in sizes from ¾" to 10".

Tubbs Rope On Treasure Island

Within a short time, now, the gates of beautiful Treasure Island on San Francisco Bay will be open to the expected fifteen million persons who will visit this great exhibit of the West.

One of the largest and most spectacular of all the buildings is the Palace of Mines, Metals and Machinery in which will be located the exhibit of the Tubbs Cordage Co., makers of Tubbs rope and twine.

Here, in over sixty feet of aisle space, the Tubbs Cordage Co. will exhibit actual rope making machinery in operation. Beautifully colored slides will be shown continuously, depicting the story of the making of rope and its use in industry.

In the same building will be housed such other sensational exhibits as Treasure Mountain, a complete replica of the California mine diggings, and the United States Steel exhibit, depicting the city of 1999, streamlined entirely of steel. It is expected that millions of visitors will see these exhibits and learn in a graphic way, when they visit the Tubbs display, the processes in the making of rope.

J. E. Elliott Back From South America Air Tour

J. E. "Brick" Elliott, president of the Elliott Core Drilling Co. of Los Angeles, Calif., has just returned to the States, following an extended trip to South America on business for his company. He made the entire journey by air, flying down the west coast via Guatemala City and Panama to Maracaibo, and later continuing on through Colombia, Eastern Venezuela and Trinidad, returning to California by way of New York.

During approximately a four months' tour, Mr. Elliott visited every important oil field, and many of the wildcats in Venezuela and Colombia. He states that present activities point to increased drilling operations in all existing fields, with a considerable amount of new development work.

The Elliott Co. is one of the major oil tool manufacturing organizations of this country, having pioneered in the coring of oil wells on a commercial basis as far back as 1921, and its products are used extensively throughout all foreign fields.

U.S.C. Opens Course In Refiner Construction

Designed for superintendents and foremen of petroleum plants, a course in "Refiner Construction", featuring details of construction and methods, is being given by University College, evening division of the University of Southern California, during its twelve-weeks winter quarter beginning Jan. 3.

Fred Johnston, Union Oil engineer, serves as instructor of the class which meets in Bridge Hall on the Trojan campus every Tuesday at 7 p.m.

Transportation and production of oil as well as mathematical analysis in petroleum problems are also offered at S. C. with other phases of engineering to include air conditioning, mine administration, industrial chemistry, and architectural engineering, according to Dean Ernest W. Tiegs.

Consideration is being given by the State Public Lands Commission to the steps to be taken when the gas wells at Rio Vista are opened for production. The Sacramento river runs through the proved gas region, and the state contends it is owner of the bed of the stream and of any minerals found there.

When T. N. Barnsdall Beat Owen D. Young

Ida M. Tarbell, who learned something about the oil business in the pioneer days of Venango County (Pa.), where her father was one of the earliest operators in the industry, recounts in her latest book, "Owen D. Young—A New Type of Industrial Leader", one of the incidents which make T. N. Barnsdall a preferred subject among oil country raconteurs. The following is an excerpt from Miss Tarbell's book:

"It was back in 1900, he (Owen D. Young) had a contract for the Street Railway of Galveston finished and signed and wired Stone & Webster at Boston he was starting for home. In reply to his wire came an order to step over to El Paso (close to two hundred miles by rail) and see if you cannot make a contract with the town for Street Railway.

" 'So,' says Mr. Young, 'I stepped over to El Paso in the sizzling heat to see what I could do about it. I found the town had but one road in operation —that was a little track which ran across the river. Its whole equipment was one car and a mule. The owner wanted twenty-five thousand dollars for this franchise and property but I wired Stone & Webster that the only thing about it that was worth having was the mule and that he wasn't worth over fifty dollars.

"I looked the town over, got acquainted with the people and particularly the councilmen. They were very eager for some kind of transportation system — said they would sign any contract I would write. So I drew up what I wired back to my principals was the best contract ever drawn. The council signed it and I went home highly satisfied with myself. It did look like a good contract for it gave Stone & Webster the right-of-way on all the streets then opened and all that should be opened in the future.'

"But a few nights after Mr. Young left El Paso there came to town one of the most picturesque, successful and independent individuals then operating in the oil fields of America — Theodore Barnsdall—a product of the Pennsylvania oil fields who from infancy had lived with derricks and tanks, asking nothing better.

"Barnsdall was never afraid to take a chance if he saw one in any kind of business; he had dropped into El Paso from certain prospecting he had been doing in Texas and as was his custom, lounged around finding out what had happened since he was there before. One of the first things he learned was that a contract for a street railway had been signed with Stone & Webster. He learned it from the man who owned the line running across the river, also the mule which drew the one car property which had been priced at twenty-five thousand dollars.

"Barnsdall had an idea—'If I buy your mule for twenty-five thousand dollars will you get me a contract from the City Council?' 'Sure,' he said—and he was as good as his word for a few days later Barnsdall took the train for Boston with contract properly signed by the City Council of El Paso.

"In Boston he went at once to Stone & Webster. 'I would like to sell you a street railway contract that I have secured at El Paso.' 'But we have got for El Paso what Owen Young says is the best contract that was ever drawn.'

" 'It's a good contract,' said Barnsdall, 'I have read it—but I am willing to leave it to Owen Young to say whether mine is not better. If he agrees that it is, you are to give me a good block of common stock in exchange. If he does not, I will give you my contract for nothing.'

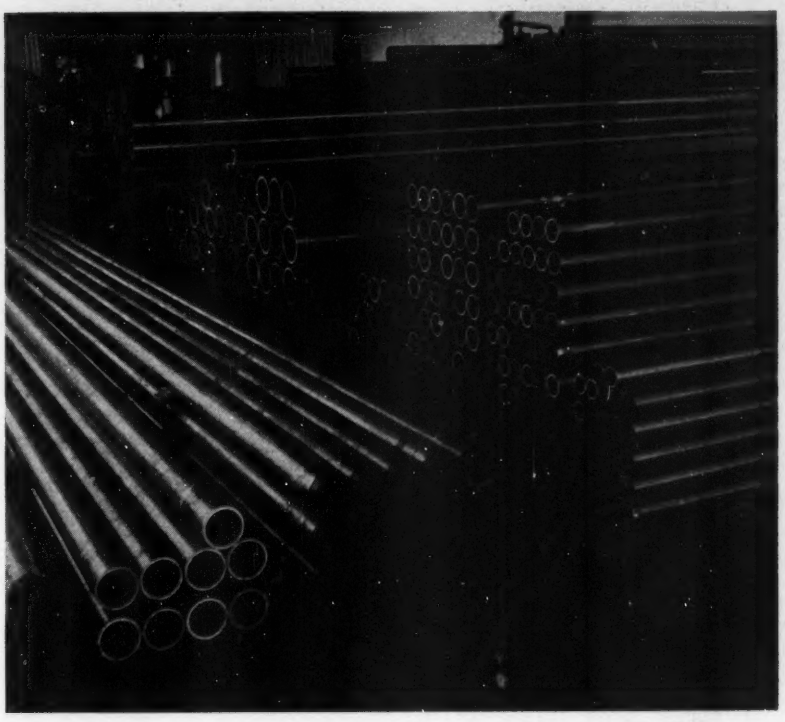
"Owen Young was called in and Barnsdall's contract was read, word for word it followed Young's until it reached the words 'In every street present and future of the City'. After 'in' and before 'every' Barnsdall had written in the words 'the middle of'—so that he had a contract for running a street railway down the middle of every street, present and future, of the town. Stone & Webster could use the sides of the street if there was room enough.

"They were good sportsmen and gave him his common stock.

" 'And that,' Mr. Young says when he tells the story, 'was the bitterest humiliation of my professional life.' "

Editor's Note—It will interest our readers to know that R. A. Broomfield, Sr., executive vice president of Barnsdall Oil Co., was associated with Mr. Barnsdall when the event recounted above took place.

HOUSTON'S FIRST CARLOAD OF "SECURALOY" PIPE



The accompanying photograph shows a portion of the first carload of "Securaloy" pipe delivered to Houston by the Security Engineering Co., Inc., Whittier, Calif. The carload, delivered Oct. 25, consisted of pipe in all the various popular sizes and was first of a series consigned to Houston to meet the requirements of Gulf Coast and Mid-Continent operators.

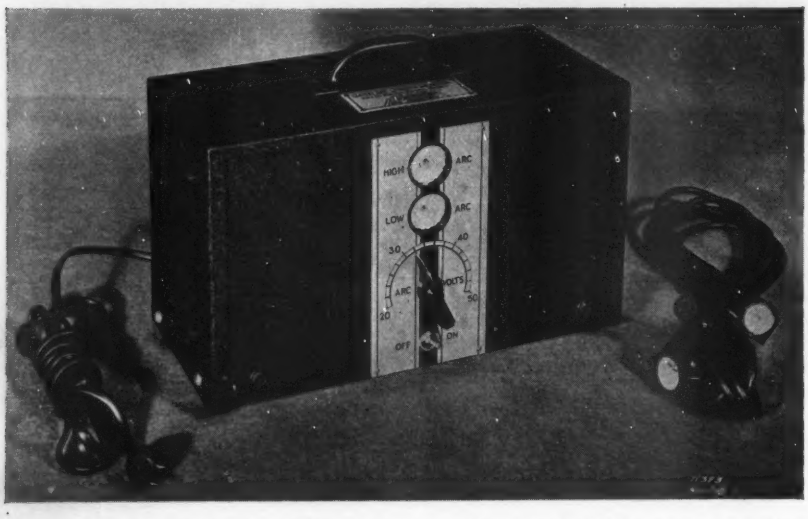
Continuing studies already in progress under Paul F. Devine, a course in petroleum technology, will be opened to new students by the University of California Extension Division in Los Angeles, Nov. 30, meeting from 7 to 9 o'clock.

Announcement has been made of the publication by the American Petroleum Institute's Division of Production of Code No. 29, "Recommended Practice on Standard Field Procedure for Testing Drilling Fluids."

A. O. Smith Offers New Welding Control

Uniformly high quality welds, particularly for applications where the expense and inconvenience of X-ray do not seem justified, are now made possible with the "Arc-Length Monitor," new product developed by the research division of the A. O. Smith Corp., Milwaukee, Wis.

In the vast majority of welding applications throughout industry, there has been no routine method to insure high quality work with this universally accepted production tool. Heretofore quality was at the mercy of the human element, which rested upon the training, experience and attitude of the individual welder.



X-ray has proven satisfactory within limits, but it cannot be depended upon to reveal harmful foreign inclusions in the weld metal or excessive amounts of nitrides. Various recording methods are also in use to indicate current and voltage values after completion of the weld, but these are also "after the fact" indications.

The Arc-Length Monitor is a practical development which fits into present shop practices. It helps the worker make a good weld while he is in the act of welding. Smith research proved long ago that, while control over voltage of itself is no definite assurance of a good weld, in nearly every case of poor welds there was a relation to the voltage involved. This situation, if controlled through definite indications to the welder during the process of welding, removes one of the main variables in welding technique. Thus it promotes higher quality welds.

The function of the device is as follows. The welder is informed of the length of his arc by means of two tiny bulbs, mounted inside his welding helmet, one on each side of the window through which he observes the arc. Both bulbs are normally dark at the selected voltage. The one to the right glows faintly, and with increased intensity, as the voltage increases from that selected; the one to the left responds similarly as the voltage decreases from that selected. Maximum brilliance is kept well below the point of hurting the operator's eyes or interfering with his work. The instrument itself, which contains signal lights similar to those in the welder's helmet, is placed where it can be observed by the production or welding supervisor.

The Monitor will be found particularly effective where very light gauge materials are used, particularly such expensive metals as stainless steel, requiring close control of the arc. It has also proven invaluable for periodically checking the ability of experienced operators and training new operators. Experiments in Smith's huge welding plant show that new operators acquire ability to hold a steady arc in about one third the usual time. The Monitor is also useful in minimizing controversy over test results in laboratories where it is desired to duplicate working conditions for welded specimens. Incidentally, it has the psychological effect of giving the welder an inducement to exercise extra care in his work.

Refiners Meetings At Houston Oil Show

Four full days will be devoted to papers and discussions on refinery equipment and its application in meeting plant problems during the Oil-World Exposition to be held in Houston from April 24 to 29, inclusive. These technical meetings will be under the direction of the Refinery Committee of which W. H. Curtin is chairman.

The complete program has been divided into four sections as follows:

Chemists Program — Tuesday, April 25: K. H. Clough, Sub-Chairman, W. H. Curtin & Co. Inc., F. W. Jessen, Humble Oil & Refining Co., A. R. Rickards, Sinclair Refining Co., E. W. Gardner, The Texas Co., W. F. Fulton, United Gas Co., and J. H. Tabony, Crown Central Petroleum Co.

Instrument Program — Wednesday, April 26: R. L. Mallory, Sub-Chairman, Brown Instrument Co., Joe Peddie, Maintenance Engineering Corp., L. G. Marsh, Taylor Instrument Co., G. B. Lane, Foxboro Co.

Heavy Equipment Program — Thursday, April 27: M. N. Dannenbaum, Sub-Chairman, M. N. Dannenbaum Co., Joe Miller, Humble Oil & Refining Co., H. M. Stewart, Humble Oil & Refining Co., Philip Darling, Pan American Refining Corp.

Process Program — Friday, April 28: George Reid, Sub-Chairman, Editor, "The Refiner", O. E. Berg, Babcock & Wilcox Tube Co., and Karl E. Luger, Carnegie Illinois Steel Co.

Imperial Pipe & Supply Moves

Imperial Pipe & Supply Co. announces the removal of their office and pipe yard to its new location 2750 E. Washington Blvd., Los Angeles.

Map of Putah Creek

A map of Putah Creek from Winters to Middletown, California, a stretch of about 60 miles, has recently been released by the Geological Survey, United States Department of the Interior. The scale of this map is 2 inches to the mile and the topography is represented with a contour interval of 20 feet on land and 5 feet on the creek surface. The map is published in 6 sheets, 3 plan, 1 profile, and 2 showing dam sites. It shows the course of the stream, the contour of the valley bottom and immediately adjacent slopes, houses, roads, and the village of Monticello.

The map of Putah Creek may be consulted at the field office of the Geological Survey, Federal Building, Sacramento, or it may be obtained from the main office of the Geological Survey, Washington, D. C., for 10 cents a sheet or 60 cents for the set.

State highway departments spent about $55,000,000 less for road construction in 1937 than in 1936, although their total 1937 revenue from highway sources and for highway purposes was almost $50,000,000 more than in the previous year.

#117

New C. P. Cementer For All High Pressure Cementing

An entirely new tool that incorporates in a single unit means for packing off a section of casing in order to perform multiple stage liner or high pressure cement squeeze jobs has been announced by O. P. Yowell Service Co., Santa Fe Springs, Calif. This tool, known as the Yowell C. P. Cementer, does the work of a bridge below and a packer above the cementing point, and, when removed from the hole upon completion of the job leaves nothing to be drilled up or removed later.

The Cementer consists essentially of an outer barrel having a series of pack-off rubbers, and an inner telescopic member that provides positive control over the direction of the fluid circulation. Slips are used to anchor the tool in place during cementing operations.

An important feature of this cementer is that it can be moved to another C. P. point in the hole without coming out for adjustment, thus permitting multiple stage cementing operations to be performed without coming out of the hole. After each job is completed, circulation can be reversed to clean the tool thoroughly. Cleaning and pumping out excess cement is carried on with the lower part of the hole packed off against all pump pressure or pulsations, so that the cement slurry behind the casing will not be affected. Circulation can be established whenever desired while going in or coming out of the hole.

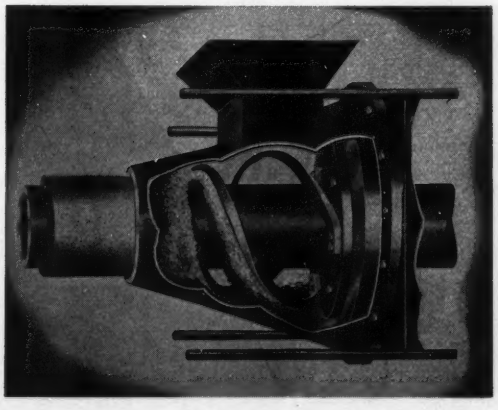
The Yowell C. P. Cementer has been in general field use for several months and has been successfully used on a wide variety of operations. It is completely engineered for all high pressure cementing jobs and can be run with equal efficiency on either tubing or drill pipe. Full details concerning the Cementer can be obtained by writing direct to O. P. Yowell Service Co., Santa Fe Springs, Calif.

Liquid Level Controller

Natural Gas Equipment, Inc., Petroleum Securities Bldg., Los Angeles, Calif., have just issued a well illustrated bulletin which gives engineering details of the improved N.G.E. Liquid Level Controller. The straight line control action of the N.G.E. controller, the makers point out, is entirely different in principle from the conventional traveling float type of controller. Maximum and minimum levels can be changed to suit any requirement, and the mean level may also be changed up or down within the range of the controller. Maximum range of the controller depends upon the length of the float. Natural Gas Equipment, Inc., solicits inquiries regarding applications.

Twenty representatives of the Wage and Hour Division are already in the field to secure cooperation in and enforcement of the Fair Labor Standards Act.

Applying a coat of cement to pipe is this Armor-Clad device recently introduced by American Pipe & Steel Corp.



John McClain Heads New Chicago Office of Clark Bros.

Clark Bros. Co. of Olean, N. Y., announces the opening of a new office in the Peoples Gas Building, Chicago, Ill. The man in charge of this office will be

John McClain

John McClain who will handle Clark engines and compressors in the Chicago area and in the states of Illinois, Indiana and Michigan.

Mr. McClain has been associated in the gas and oil business for the past fifteen years in a sales and engineering capacity and is well known to the petroleum trade.

Activated Clay Booklet

Filtrol Corp., 315 West Fifth St., Los Angeles, Calif., have just revised their booklet, "Filtrol Products and Their Commercial Uses," which describes the use of adsorbent clay as a purifying agent for oils and fats. The commercial activation of clay for these uses, Filtrol officials state, has been exclusively pioneered in this country by Filtrol.

Activated bleaching clay is a designation for chemically treated clay which is distinguished from ordinary bleaching earth in its superior ability to adsorb impurities and coloring matter. It is prepared from bentonitic types of raw clays which are hydrous silicates of aluminum with accompanying small contents of magnesium, calcium and iron. The Filtrol Corp. operates many mines and two completely modern manufacturing plants at Vernon, Calif., and at Jackson, Miss.

Business and Professional Directory

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Oil Men's Calendar

C.N.G.A. Meeting First Thurs. Each Month.

January, 1939

9-13—Society of Automotive Engineers, Annual Meeting, Detroit, Mich.

19—Industrial Marketers of So. Calif.—Round Table Discussion of Advertiser's Problems. University Club—6:30 P.M.—Dinner optional.

February

20-24—12th National Asphalt Conference auspices of The Asphalt Institute, Biltmore Hotel, Los Angeles.

March

22-24—The American Association of Petroleum Geologists 24th annual meeting, Oklahoma City, Okla., Skirvin Hotel, headquatrers.

April

24-29—Oil World Exposition, Inc., Houston, Texas.

L. A. Basin A. P. I. To Meet January 17

The Los Angeles Basin Chapter of the American Petroleum Institute, Division of Production, will hold its first meeting of the year on Tuesday, January 17 at the Shell Recreation Hall in Long Beach at 7:30 p.m. The program will be as follows:

"Application of Explosives in the Oil Field" by Ford Alexander.

"New Developments on the Long Beach Harbor Area of the Wilmington Field" by E. J. Bartosh, engineer, Bankline Oil Co.

"Crossroads of The Pacific"—"Training of Naval Aviation Cadets at Pensacola, Fla."—2 motion pictures produced and shown through the courtesy of the U. S. Navy Recruiting office. Commander E. P. Saur

Both motion pictures and the papers should be interesting and educational to all in attendance.

All oil men are invited, whether or not they are members of the American Petroleum Institute, according to C. R. Malone, Secretary.